AG-3621

Reference Manual for the ZComax Enterprise-Class 802.11a/b/g Wireless Access Point

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Preface

About This Manual

This manual explains Zcomax (UK) Limited enterprise-class AG-3621 access point.

Document Conventions

AP refers to an access point.

STA refers to a station

ETH refers to a PC

The following special notations are used:

Note

- This indicates an important Note.

Bold: Indicates the function, important words, and so on.

Chapter 1. Introduction

Thank you for choosing the Zcomax (UK) Limited's AG-3621 Access Point (hereafter called access point). This Access Point provides a secure, affordable, and easy-to-use wireless LAN solution that combines mobility and flexibility with the enterprise-class features required by networking professionals.

This chapter gives an overview of the enterprises-class AG-3621 access point, as well as its key features. In addition, we detail about the hardware description, system requirement and basic installation.

Overview

802.11a/b/g-compliant, this access point distinguishes herself by one built-in mini-PCI card, providing wired and wireless two ports in a bigger infrastructure. Typically, VAP functionality allows a single network AP to behave as "8" number of virtual network APs. This does away with the limitation by the sheer number of Ethernet connections that need APs acting as a proxy. WMM prioritizes traffic demands from different applications and extends Wi-Fi's high quality end-user experience from data connectivity to voice, music, and video applications under a wide variety of environment.

This Access points serves as the connection point between wireless and wired networks or as the center point of a stand-alone wireless network. In large installations, wireless users within radio range of an access point can roam throughout a facility while maintaining seamless, uninterrupted access to the network.

You can configure and monitor the access point using the command-line interface (CLI), the browser-based management system, or Simple Network Management Protocol (SNMP).

This Access Point currently can support data rate up to 108Mbps. Users are encouraged to update their latest firmware through http://www.zcom.com.tw

Networks are useful tools for sharing computer resources. You can access one printer from different computers and access data located on another computer's hard drive. Networks are even used for playing multiplayer video games. So, networks are not only useful in homes and offices, they can also be fun. Use the instructions in this Guide to help you connect the Access Point, set it up, and configure it to bridge your different networks. These instructions should be all you need to get the most out of the Access point.

Key Features:

The AG-3621 Access Point is use-friendly and provides solid wireless and networking support. The following standards and conventions are supported:

• Standards Compliant. The Wireless Access Point complies with the IEEE 802.11a/b/g for Wireless LANs.

• WEP support. Support for WEP is included. 64-bit, 128-bit, and 152-bit keys.

• DHCP Client Support. DHCP Server provides a dynamic IP address to PCs and other devices upon request. The AG-3621 can act as a client and obtain information from your DHPC server.

• RADIUS Accounting—Enable accounting on the access point to send accounting data about wireless client devices to a RADIUS server on your network.

• SNMP Support. Support for Simple Network Management Protocol (SNMP) Management Information Base (MIB) management.

• Multiple operating modes:

1. Access point
2. Station Adapter
3. Point-to-Point Bridge.
4. Wireless Repeater
5. Inter-building

• Repeater mode—Configure the access point as a wireless repeater to extend the coverage area of your wireless network.

• VAPs

Assign Multi-SSIDs on your access point (one SSID per VAP) to differentiate policies and services among users forming a wide variety of VLANs.

• QoS

Use this feature to support quality of service for prioritizing traffic from the Ethernet to the access point. The access point also supports the voice-prioritization schemes used by 802.11a/b/g wireless phones.

•Transmit Power Control

Supports settable transmit power levels to adjust coverage cell size, ranging from full, half(50%), quarter(25%) eighth(12.5%0 and min

•Atheros Super G Mode: Super G mode enables the transmission up to 108Mbps

• Multiple security settings per VLAN with up to 8 VLANs

Security settings for multiple groups – so employees, guests and contractors now easily and

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securely share the same infrastructure

•Access Control.

The Access Control MAC address filtering feature can ensure that only trusted wireless stations can use the AG-3621 to gain access to your LAN.

•Hidden Mode

The SSID is not broadcast, assuring only clients configured with the correct SSID can connect.

System Requirements

Before installing the AG-3621 access point, make sure your system meets these requirements

- The Category 5 UTP straight through Ethernet cable with RJ-45 connector included in the package, or one like it
- A 230 V, 50 HZ AC power source
- A Web browser for configuration such as Microsoft Internet Explorer 6.0 or above, or Netscape Navigator 4.78 or above
- At least one computer with the TCP/IP protocol installed

What's In the Box?

- Zcomax (UK) Limited Wireless Access Point 802.11a/b/g AG-3621
- Power adapter and cord
- Two Dual-Band Omni-directional antennas
- AG-3621 11a/b/g Wireless Access Point Installation Guide
- Resource CD for the Zcomax (UK) Limited AG-3621 Wireless Access Point
- Support Registration card

If any missing or damaged, please contact your local seller.

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Hardware Description

We'll discuss the AG-3621 front and rear functions.

The LEDs

The Access Point's LEDs, where information about network activity is displayed, are located on the front panel.

LED		DESCRIPTION
PWR	Off	No power. If this LED does not come on with the power adapter and cord correctly installed
	On	Power is on.
TEST	Off	Indicates that leaving boot-code mode
	On	Indicates that entering boot-code mode
	Blink	1. Reset button is pressed around 3 seconds (slow blinking). 2. Reset button is pressed after 3 seconds(fast blinking) 3. Whlie you upgrade firmware or reset to factory default,the TEST LED is blinking.After firmware is upgraded or reset to factory default, the Access Point will reboot automatically.
LAN(100)	Off	10 Mbps Ethernet link is detected but no activity.
	On	100Mbps Fast Ethernet link is detected but no activity.
LAN(LINK/ACT)	Blinking	Indicates that Data processing(Frequency depends on traffic)
WLAN	Off	Indicates no wireless links
	On	Wireless LAN is in service but no activity.
	Blinking	Indicates the device is linking or active data through wireless links.

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Chapter 2. Basic Installation and Securities

This chapter explains how to place and connect the AG-3621 Access Point. In addition, the AG-3621's security features are elaborated.

✎ Note

You need to prepare these three things before you can establish a connection through your wireless access point.

• A location for the AG-3621 that conforms to the Observing Placement and Range Guidelines below.

• The wireless access point connected to your LAN through a device such as a hub, switch, router, or Cable/DSL gateway.

• One or more computers with properly configured 802.11a/b/g.

Operating Distance Tips:

The range of your wireless connection is significantly determined by the physical placement of the access point.

To optimize the results, place your wireless access point:

• Near the center of the area in which your PCs will operate.

• In an elevated location such as a high shelf where the wirelessly connected PCs have line-of-sight access (even if through walls).

• Away from sources of interference, such as PCs, microwaves, and 2.4 GHz cordless phones.

• Away from large metal surfaces.

• Putting the antenna in a vertical position provides best side-to-side coverage. Putting the antenna in a horizontal position provides best up-and-down coverage.

• If using multiple access points, it is better if adjacent access points use different radio frequency Channels to reduce interference. The recommended Channel spacing between adjacent access points is 5 Channels (for example, use Channels 1 and 6, or 6 and 11).

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Default Factory Settings

We'll detail about AG-3621 default factory settings below. Factory Default Restore will enable you to restore these defaults.

FEATURE	FACTORY DEFAULT SETTINGS
User Name (case sensitive)	admin
Password (case sensitive)	password
Access Point Name	APxxxxxx(xxxxxx represents the last 6 digits of MAC address)
Country / Region	United States
Router Mode	Bridge
IP Type	static IP
IP Address	192.168.1.1
IP Subnet Mask	255.255.255.0
Default Gateway	0.0.0.0
Operating Mode	Access Point
Wireless Mode	802.11a
Channel / Frequency	52 / 5.260GHz

Getting To Know AG-3621 Wireless Security Options

Zcomax (UK) Limited wants to make wireless networking as safe and easy for you as possible. The current generation of Zcomax (UK) Limited products provides several network security features, but they require specific action on your part for implementation. So, keep the following in mind whenever you are setting up or using your wireless network.

Security Precautions

The following is a complete list of security precautions to take as shown in this User's Manual. (at least steps 1 through 5 should be followed):

1. Change the default SSID.
2. Disable SSID Broadcast.
3. Change the default password for the Administrator account.
4. Enable MAC Address Filtering.
5. Change the SSID periodically.
6. Use the highest encryption algorithm possible. Use WPA if it is available. Please note that this may reduce your network performance.
7. Change the WEP encryption keys periodically.

To ensure network security, steps one through four should be followed, at least. Wireless networks are easy to find. Hackers know that in order to join a wireless network, wireless networking products first listen for "beacon messages". These messages can be easily decrypted and contain much of the network's information, such as the network's SSID (Service Set Identifier).

Security Options

There are several ways you can enhance the security of your wireless network:

• Restrict Access Based on MAC address. You can restrict access to only trusted clients so that unknown clients cannot wirelessly connect to the AG-3621. MAC address filtering adds an obstacle against unwanted access to your network, but the data broadcast over the wireless link is fully exposed.

• Use WEP. Wired Equivalent Privacy (WEP) data encryption provides data security. WEP Shared Key authentication and WEP data encryption will block all but the most determined eavesdropper.

• Use WPA or WPA-PSK. Wi-Fi Protected Access (WPA) data encryption provides data security. The very strong authentication along with dynamic per frame re-keying of WPA makes it virtually impossible to compromise.

• Enable Wireless Security Separator

The associated wireless clients will not be able to communicate with each other if this feature is enabled. The default setting is Disable.

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Installing AG-3621 Access Point

Before installing, you should make sure that Ethernet network is perfectly working. You will be connecting the AG-3621 to the Ethernet network so that computers with 10/100 Fast Ethernet adapters will communicate computers on the Ethernet.

1. SET UP THE AG-3621 ACCESS POINT Tip:

Before mounting the AG-3621 in a high location, first set up and test the AG-3621 to verify wired network connectivity.

a. Prepare a computer with an Ethernet adapter. If this computer is already part of your network, record its TCP/IP configuration settings.

b. Configure the computer with a static IP address of 192.168.1.x (x cannot be 1)and 255.255.255.0 for the Subnet Mask.

c. Connect an Ethernet cable from the AG-3621 to the computer.

d. Turn on your computer, connect the power adapter to the AG-3621 and verify the following:

– The PWR power light goes on.

– The LAN light of the wireless access point is lit when connected to a powered on computer.

2. 2 CONFIGURE LAN AND WIRELESS ACCESS

   a. Configure the AG-3621 Ethernet port for LAN access

   • Connect to the AG-3621 by opening your browser and entering http://192.168.1.1 in the address field. A login window like the one shown below opens:

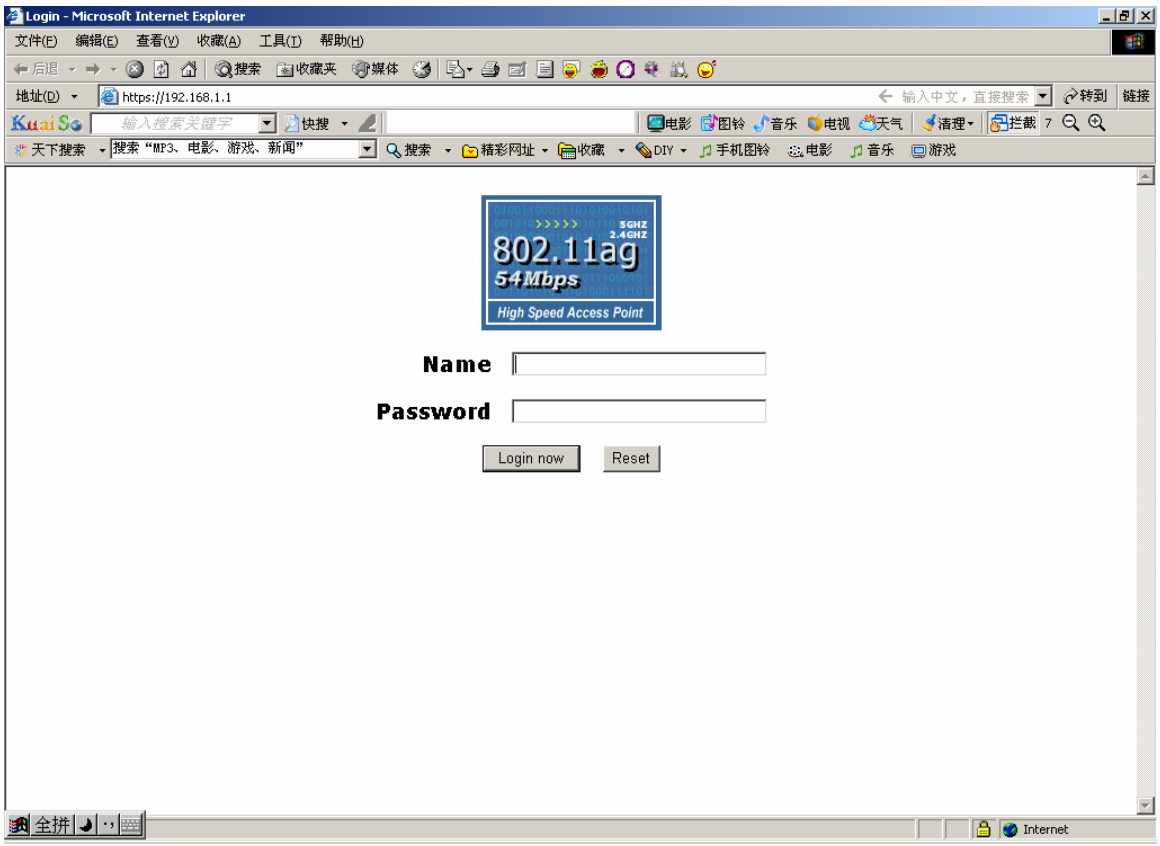

Figure:2-1 AG-3621 log in window

When prompted, please enter **admin** for Name and **password** for password, both in low cases.

3. Clicking Login now, it will navigate you into AG-3621's homepage-----General Information will be shown below.

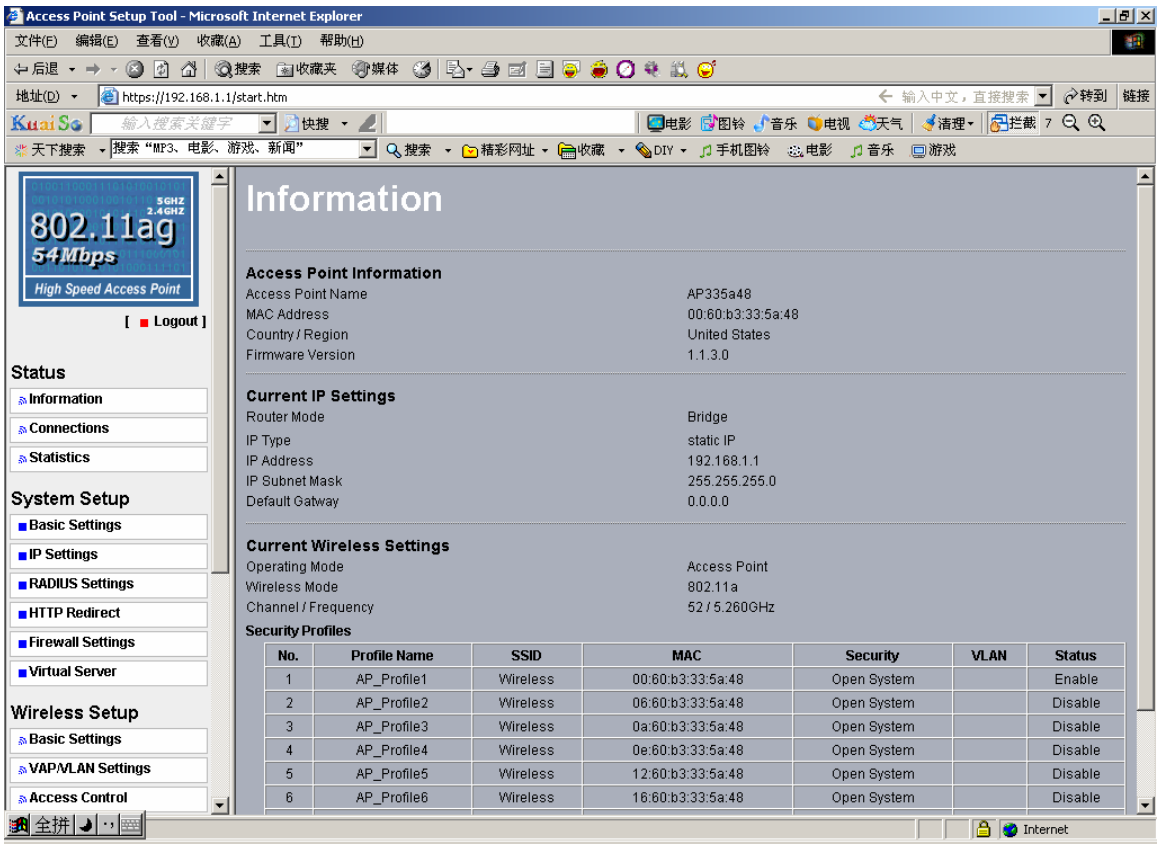

Figure:2-2 AG-3621 general information

Deploy the AG-3621 Access Point

a. Disconnect the AG-3621 and position it where you will deploy it. The best location is elevated, such as wall mounted or on the top of a cubicle, at the center of your wireless coverage area, and within line of sight of all the mobile devices.

b. Lift the antenna on either side so that they are vertical.

Note: Consult the antenna positioning and wireless mode configuration information in the Advanced Configuration chapter of the Reference Manual.

c. Connect an Ethernet cable from your AG-3621 Access Point to a LAN port on your router, switch, or hub.

d. Connect the power adapter to the wireless access point and plug the power adapter in to a power outlet. The PWR, LAN, and Wireless LAN lights should light up.

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Chapter 3. General Information

General information gives you a basic concept of the AG-3621 Access Point.

Information

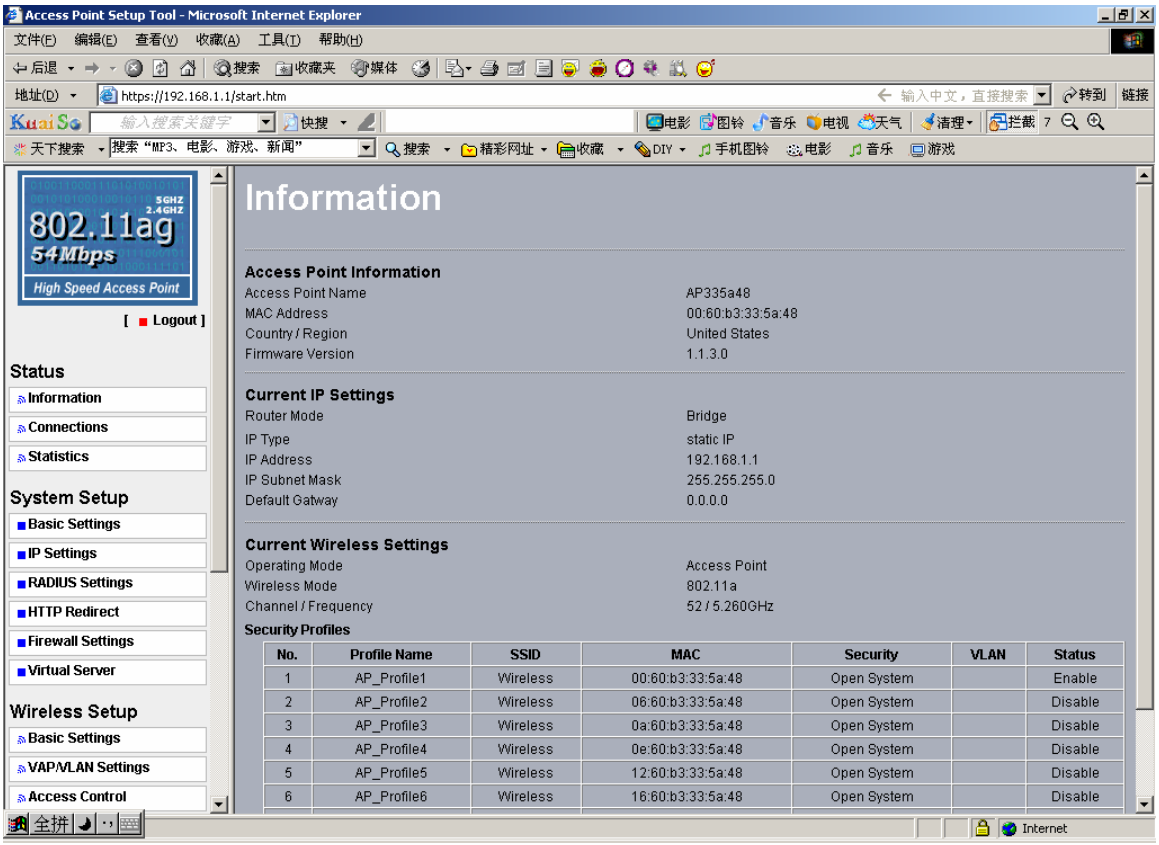

Figure: 3-1 AG-3621 general information

Understanding General Information Settings

We'll elaborate the information from the AG-3621 homepage

Access Point Name: You may assign any device name to the Access Point. This name is only used by the Access Point administrator for identification purposes. Unique, memorable names are helpful, especially if you are employing multiple access points on the same network. The default name is APxxxxxx..

MAC Address: Short for Media Access Control address, a hardware address that uniquely identifies each node of a network.

Country/Region: This field identifies the region where the AG-3621 can be used. It may not be legal to operate the wireless features of the wireless access point in a region other than one of those identified in this field. The default country is the United States.

Firmware Version: Firmware is stored in a flash memory and can be upgraded easily, using your Web browser, and can be upgraded via ftp server or ftp server. The currently available version of AG-3621 is 1.1.3.0.

IP Type: By default, the AG-3621 is configured as static IP Address.

IP Address: The IP address must be unique to your network. The default IP address is 192.168.1.1

Note

- To associate the access point to your PC, make sure the PC IP address need to be matched the AP. For instance, the AG-3621 is 192.168.1.1, and your PC IP should be 192.168.1. X.

Subnet Mask: The Subnet Mask must be the same as that set on the LAN that your Access Point is connected to. The default is 255.255.255.0.

Operating Mode: AG-3621 provides five modes, Access Point, Station, bridge, repeater and inter-building.

Access Point: Act as a standard 802.11a/b/g. The default mode is Access Point.

Station: Perform as a client station associated to other APs. Be sure that they share the same SSID when connected.

Bridge: The AG-3621 acts as a bridge connecting APs. Two bridge modes are available below.

Point-to-Multi-Point Bridge:Select this only if this AG-3621 is the “Master” for a group of bridges. The other bridge must use this AG-3621 MAC address. They then send all traffic to this “Master”, rather than communicate directly with each other. WEP should be used to protect this traffic.

Wireless Repeater: In this mode, the AG-3621 can communicate with another wireless station or wireless bridge. You can enter the MAC address of both adjacent repeaters in the fields provided to communicate with other wireless bridge or use SSID to communicate with other wireless station. WEP should be used to protect this communication.

Wireless Mode: Select the desired wireless operating mode. The default mode is 802.11a.

Channel: This field identifies which operating frequency will be used.

Security Profiles: This provides a list of virtual APs derived from AG-3621 Virtual AP, spelling out profile name, SSID, MAC, security, and status.

Connection

Under the Information heading, click the connection link to view the connection status shown below.

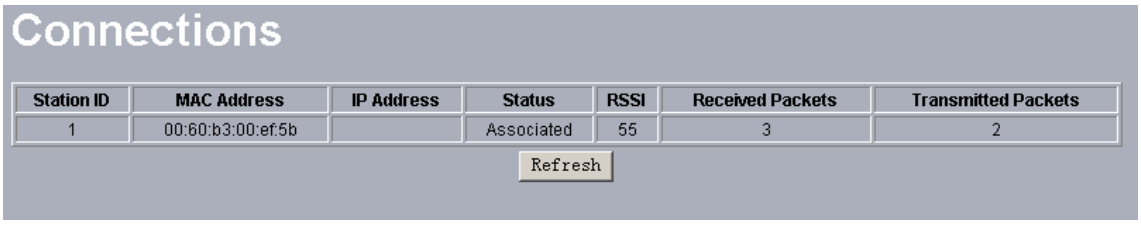

Figure: 3-2 AG-3621 connection status

Note

- If the wireless access point is rebooted, the table data is lost until the wireless access point rediscovers the devices.

Statistics

The statistics provide various LAN and WAN statistics.

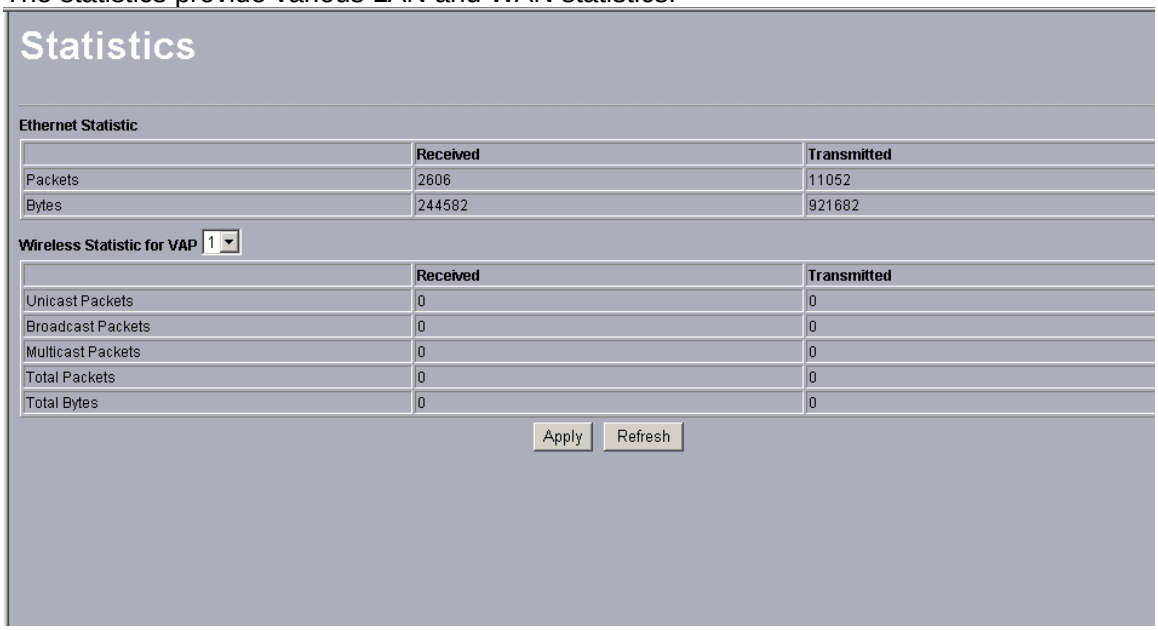

Figure: 3-3-AG-3622 statistics

Field		Description
Wired Ethernet	Packets	The number of packets sent since the AG-3621 was restarted.
	Bytes	The number of bytes sent since the AG-3621 was restarted.
Wireless	Unicast Packets	The Unicast packets sent since the AG-3621 was restarted.
	Broadcast Packets	The Broadcast packets sent since the AG-3621 was restarted.
	Multicast Packets	The Multicast packets sent since the AG-3621 was restarted.
	Total Packets	The Wireless packets sent since the AG-3621 was restarted.
	Total Bytes	The Wireless bytes sent since the AG-3621 was restarted.

Chapter 4. Copious Functionalities

The versatile AG-3621 access point provides various, applicable functions.

Time Server

By click Basic Settings, the “Basic Settings” will appear shown below.

Figure: 4-1 AG-3621 Basic settings

The AG-3621 allows you to synchronize the time between your network and time server by using NTP Time Server.

Time Sever provides correct and current time in any world time zone, country or major city. Accurate adjustments for Daylight Saving Time (or Summer Time) are made according to each location's rules and laws.

Time Server Port: This field identifies the time server port like 123.

Time Zone: Select the time zone location for your setting.

Current Time: This field identifies the current time in your specific time Zone.

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Bridge/Router Mode

From the system setup, click IP Settings, you'll be navigated into the WAN/LAN Settings.

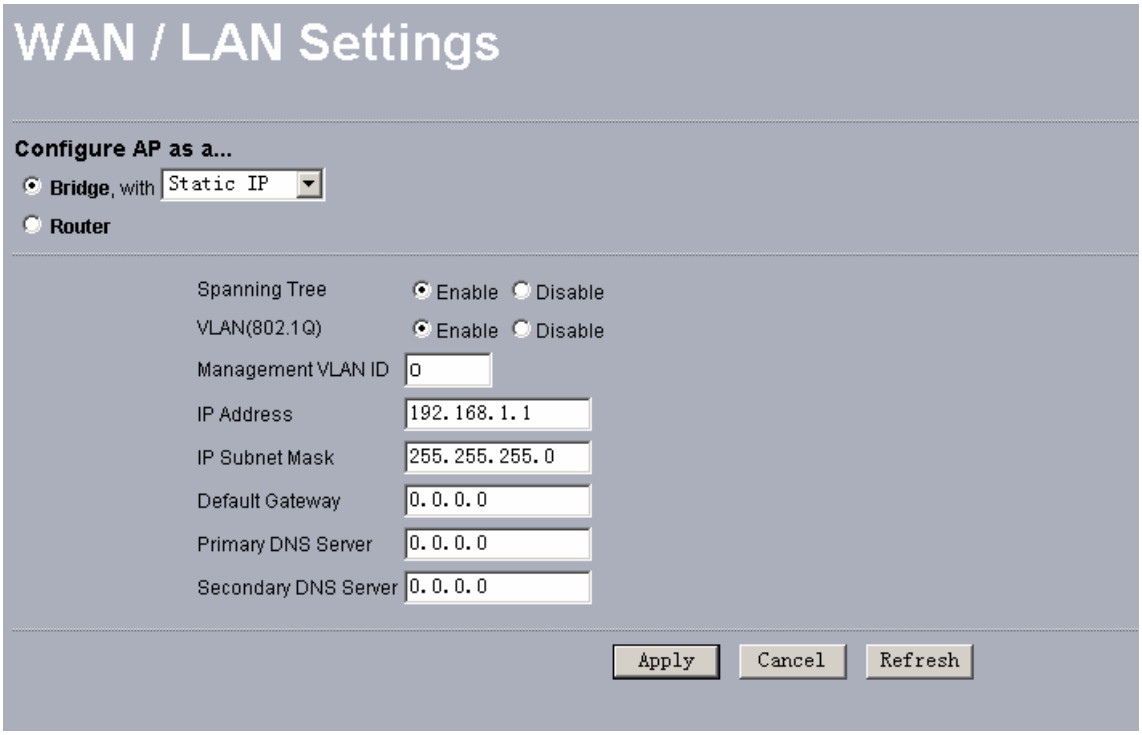

Figure: 4-2 AG-3621 WAN/LAN settings

AG-3621 can be figured as bridge mode and router mode.

Bridge Mode

Under Bridge Mode, the AG-3621 will act as a pass-through bridging your network, by associating with various devices. This can extend your radius of your network.

Spanning Tree: Enabling spanning tree can prevent undesirable loops in the network, ensuring a smooth running network. By default, the function is enabled.

Router Mode

Under Router Mode, the AG-3621 has two ports, WAN port and LAN ports.

If your network has a requirement to use a different IP addressing scheme, you can make those changes in this menu. These settings are only required if the Refresh" is chosen.

Remember to click Apply to save your changes.

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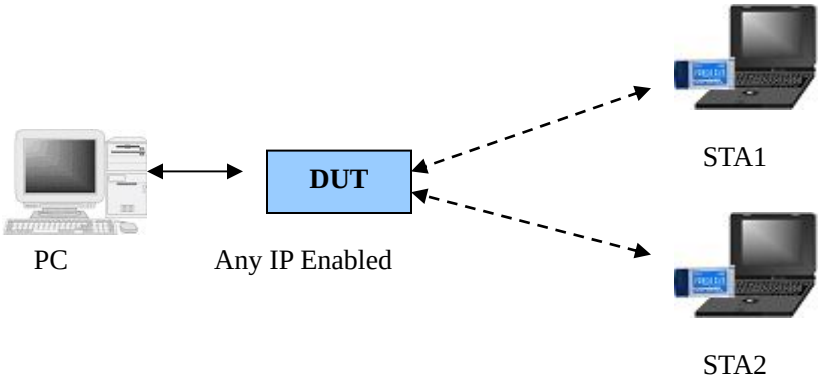
Any IP

If IP address has slipped your mind, any IP functionality can relieve your anxiety.

Enabling any IP, you'll feel free to enter IP Address, IP Subnet Mask and Gateway, enjoying internet surf.

Please refer to the diagram below.

Take the steps to activate the functionality.



1. Configure the AG-3621 as router mode.
2. Make sure your station connected to the AP.
3. Set correct IP parameters for the AP.
4. Enable any IP

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Understanding RADIUS Settings

RADIUS is a server for remote user authentication and accounting. It can be used on any network that needs a centralized authentication and/or accounting service for its workstations. From the system Setup, click Radius Settings, the RADIUS Settings will display as below.

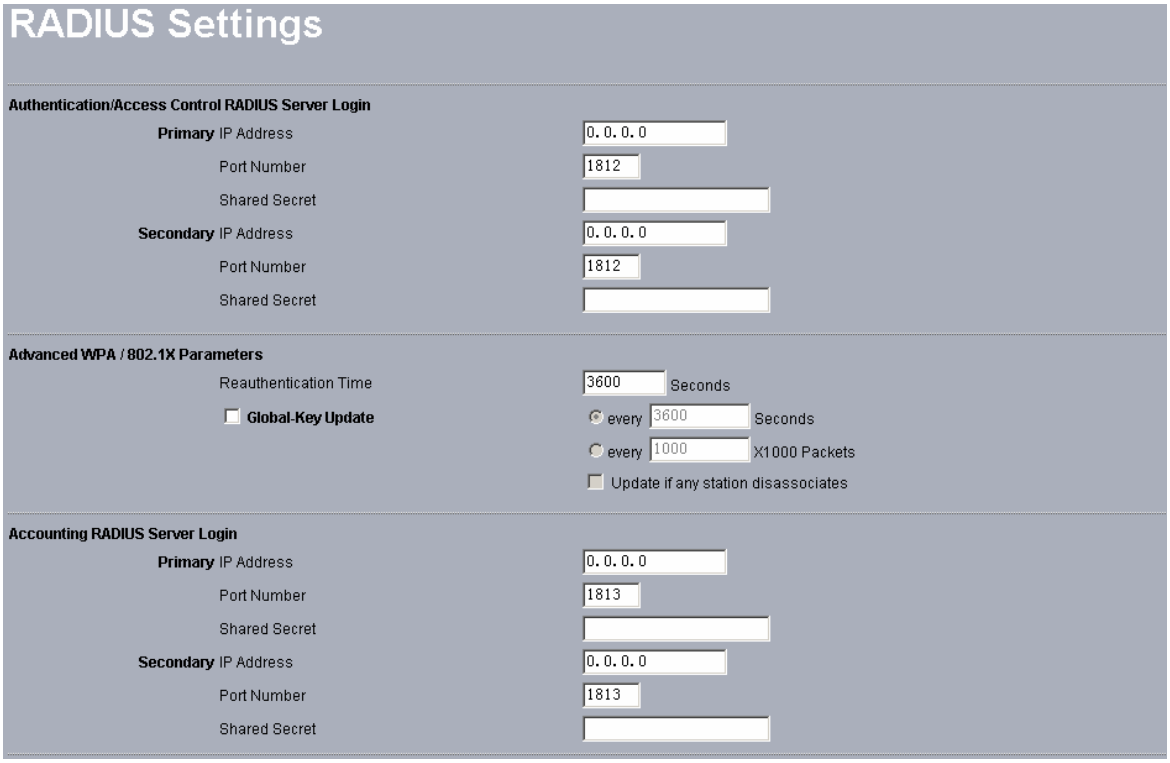

Figure: 4-3 AG-3621 Radius settings

You will also have to fill in the following Radius server settings:

• Primary Radius Server IP Address

This field is required. Enter the IP address of the Radius Server on your LAN or WAN..

• Secondary Radius Server IP Address

This field is optional. Enter the IP address of the Secondary Radius Server on your LAN.

• Radius Port

Enter the port number used for connections to the Radius Server.

• Radius Shared Key

Enter the desired value for the Radius shared key. This key enables the AG-3621 to log in to the Radius server and must match the value used on the Radius server.

•Radius Accounting Option

The Radius Accounting option can be enabled so that you can track various information like who connected to the network, when they connected, how long they were connected, how

much network traffic they generated, and so on.

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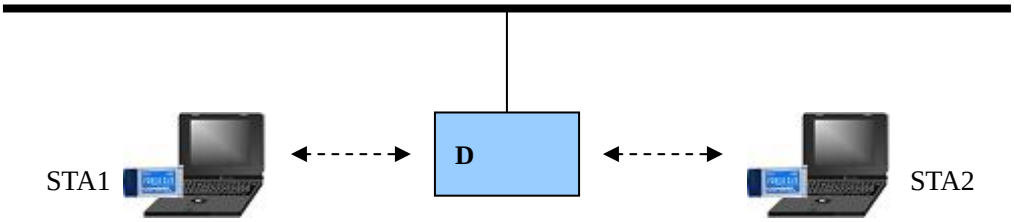
HTTP Redirect

Currently market campaign has a stake in the future of your company, so that plugging your products on website is a basic step for your goods.

The AG-3621 access point has insight into your need. Enabling HTTP Redircet, you can enter the company website (for example, http://www.google.com). It is your desired web that first appear when someone is surfing on internet, via a station connected to your AP for internet surf.



The following is the HTTP Redirect Settings.

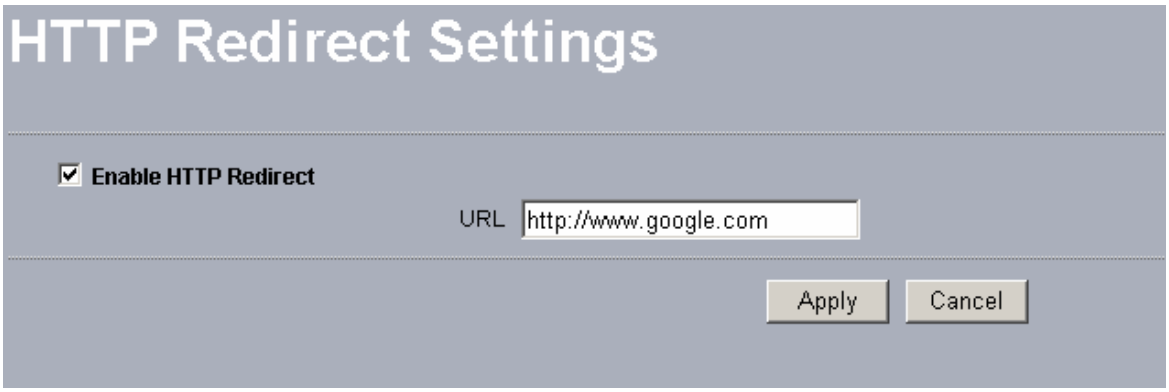


Figure: 4-4 AG-3621 HTTP Redirect settings

URL

Enter your desired website in this field. Be sure to click “Apply” to save the configuration.

Note

- Be sure to your AP connected to the internet when using HTTP Redirect.

Firewall Management

Today's companies rely on highly networked, secure computing environments to efficiently and safely conduct business. Firewalls are a key component of any secure network. Firewalls are configured to allow "desired" traffic in and to keep "undesired" traffic out.

The AG-3621 access point is also qualified for firewall management.

Please see the diagram below.

Acting as a firewall, the AP will filter your undesired data and protocols, only delivering the "wanted" for your PC.

Click the firewall link and you'll be navigated to Firewall Management interface.

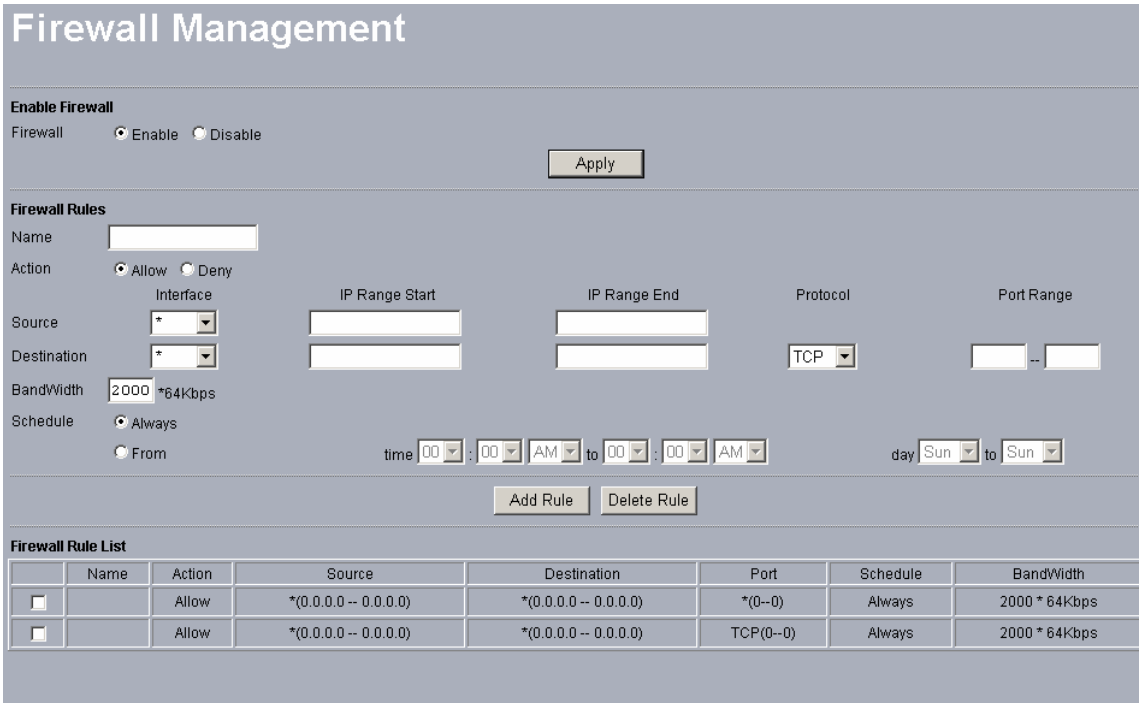


Figure: 4-5 AG-3621 firewall management

Before applying the firewall management, you need enable firewall.

Here we'll discuss Firewall.

• Name

Enter your desired firewall rule name in this field.

• Allow

This field identifies which packets have IP addresses specified by you, are allowed to transmit at your LAN.

• Deny

This field identifies which packets have IP addresses specified by you, are banned to transmit

at your LAN.

• Interface

This is optional, WAN or LAN.

• Destination

This specifies where packets are bound for.

•IP Range Start

This specifies the starting-point of your specific IP addresses.

•IP Range End

This specifies the ending-point of your specific IP addresses.

•Protocol

This is optional, TCP, DCP, ICMP or *. Select which protocol you want to perform “Allow” or “Deny”.

Note

- * indicates you restrict no protocol to perform “Allow” or “Deny”.

•Port Range

This specifies your IP port range.

Schedule

You can set time when your AP performs firewall management, by enabling “from”. Alternatively, if you desire your AP to perform firewall management for a long time, please enable “always”.

When completing all firewall rules configuration, please click Add Rule. Firewall Rule List will appear below.

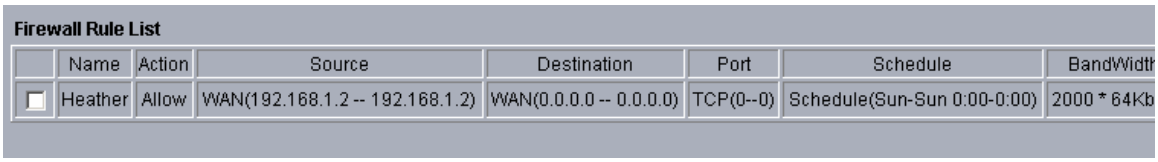


Figure: 4-6 AG-3631 firewall list

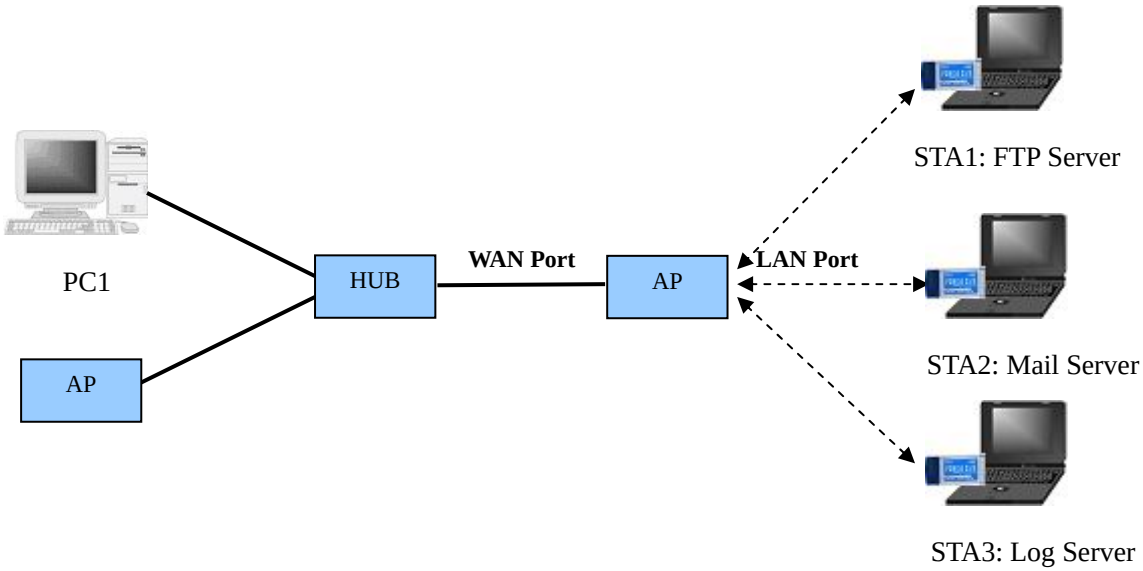
Virtual Server

Note

- Virtual server can be enabled only under router mode.

The AG-3621 access point distinguishes by acting as a virtual server. This most cost-effective server virtualization technology is engineered for heterogeneous network. Please refer to the following diagram.

Under router mode, designed for the virtual server, the AP is wirelessly coupled to FTP server, mail server and log server on LAN port; on WAN port, the AP is coupled to PC. The AP is the



virtual server, so that you have access to download files, enjoy e-mails or undertake others, only via your PC.

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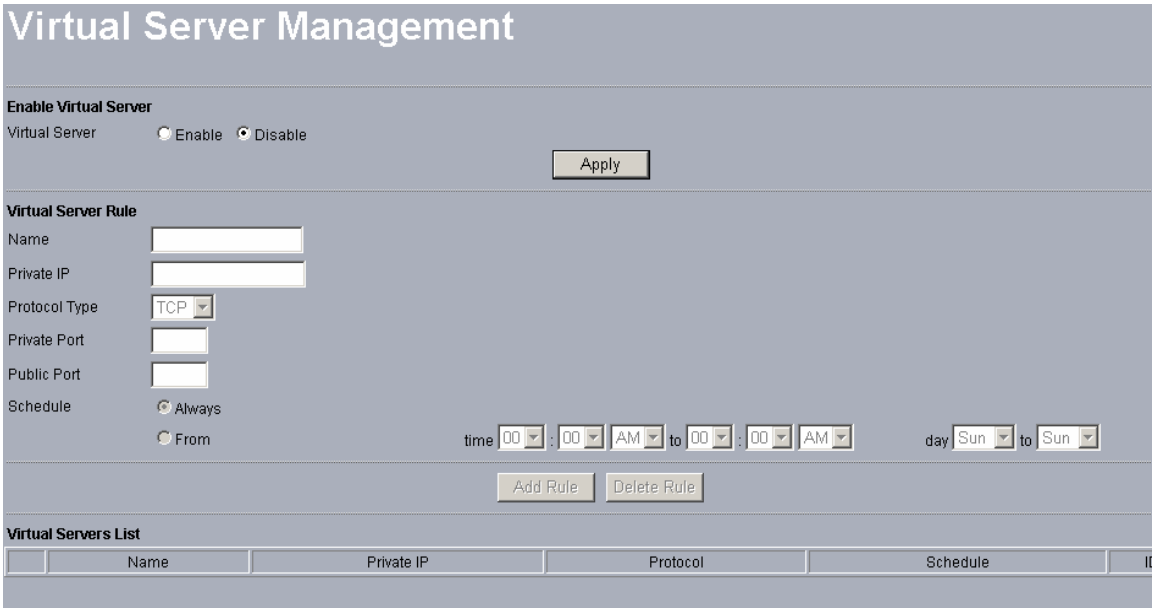

Figure: 4-7 AG-3621 virtual server management

We'll discuss virtual elements below.

•Name

Enter the virtual server's name in this field.

•Private IP

This specifies the IP Address at your LAN.

•Protocol Type

This field is optional. Select TCP or UDP.

•Private Port

This specifies your LAN port.

•Public Port

This specifies your WAN port.

Schedule

You can set time-limit when your AP acts as a virtual server, by enabling "from".

Alternatively, if you desire your AP to act as a virtual server for a long time, please enable "always".

When completing configuration of your virtual server, please click "Add Rule" to save the setting.

•Virtual Server List

This provides you with the detailed list of virtual servers.

Chapter 5. Wireless Setup

This chapter focuses on the AG-3621 access point's powerful wireless function.

Basic Settings

The versatile AG-3621 access point proves adequate to five operating modes for your various purposes.

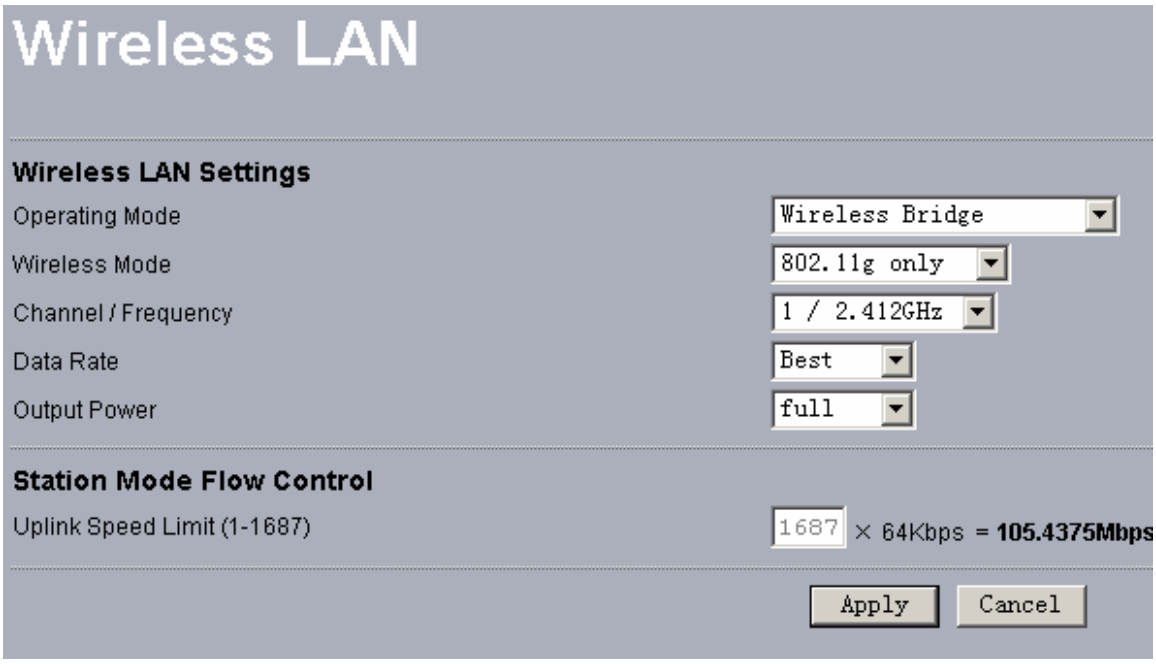

Figure: 5-1

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Operating Mode:

AG-3621 is capable of five operating modes, access point, station adapter, wireless bridge, wireless repeater, and wireless inter-building.

•Access Point

Any 802.11a/b/g wireless station can communicate with it by correct SSID.

•Wireless bridge

In this mode, the AG-3621 only communicates with another bridge-mode wireless station. You must enter the MAC address (physical address) of the other bridge-mode wireless station in the field provided. WEP should be used to protect this communication.

•Point to Multi-Point Bridge

Select this only if this AG-3621 is the “Master” for a group of bridge-mode wireless stations. The other bridge-mode wireless stations must be set to Point-to-Point Bridge mode, using this AG-3621 MAC address. They then send all traffic to this “Master”, rather than communicate directly with each other. WEP should be used to protect this traffic.

• Wireless Repeater.

In this half-duplex mode, the AG-3621 can communicate with another wireless bridge and wireless station. You must enter the MAC address of both adjacent wireless bridges in the fields provided. WEP should be used to protect this communication.

•Inter-building

This is Zcomax (UK) Limited own brand of WDS mode. Under this mode, AG-3621 will automatically connect XI-1500, without manually entering MAC address for each other.

•SSID

The SSID is the unique name shared among all devices in a wireless network. It is case-sensitive, must not exceed 32 alphanumeric characters, and may be any keyboard character. Make sure this setting is the same for all devices in your wireless network. The default SSID name is wireless.

•BSSID

A group of Wireless Stations and a single access point, all using the same ID (SSID), form a Basic Service Set.

Using the same SSID is essential. Devices with different SSIDs are unable to communicate with each other. However, some access points allow connections from wireless stations which have their SSID set to “any” or whose SSID is blank (null).

•Wireless Mode

Select the desired wireless operating mode. The options are:

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11a only – Only 802.11a wireless stations can be used.

Auto (11g/b) – Both 802.11g and 802.11b wireless stations can be used.

11g only - Only 802.11g wireless stations can be used.

11b only - All 802.11b wireless stations can be used. 802.11g wireless stations can still be used if they can operate in 802.11b mode.

• Channel. This field identifies which operating frequency will be used. It should not be necessary to change the wireless channel unless you notice interference problems or setting up the AG-3621 near another access point.

• Data Rate. Shows the available transmit data rate of the wireless network. The default is Best.

• Output Power. Set the transmit signal strength of the access point. The options are full, half, quarter, eighth, and min. Decrease the transmit power if more than one AP is collocated using the same channel frequency. The default is Full.

Station Mode Flow Control

Uplink Speed Limit (1-1687): It indicates the transmission rate.

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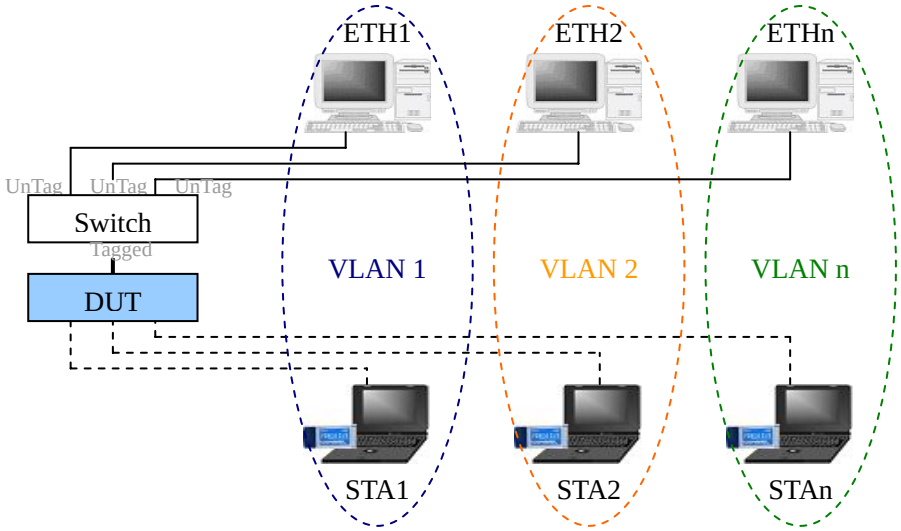
VAP / VLAN Settings

Overview

As the number of data-based systems increase, it becomes more and more difficult to provide the network infrastructure (due to the sheer number of Ethernet connections that need to be provided) from the perspective of cost, space, and wire management. Luckily, the advent technology called VLAN (Virtual Local Area Network) can achieve her mission. Now it is possible for these multi devices to be multi devices in function without the need for multiple physical network APs.

See the diagram below.



Under this mode, the AG-3621 access point can behave as 8 virtual Wireless LAN infrastructures.You can specify unique SSID for these different infrastructures. For example, VLAN1 contains ETH1 and STA1, VLAN2 contains ETH2 and STA2, and so on. However, they all share the same AG-3621 and undertake different tasks. Some VLANs can be used for guest Internet access, others for enterprise users, and administrators can be put on a high security VLAN with enhanced firewall permissions. All this can be achieved using a single infrastructure to emulate up to 8 infrastructures. The AG-3621 AP does this by assigning each of the 8 VLANs it's own SSID, so you will think you are looking at up to 8different wireless networks.

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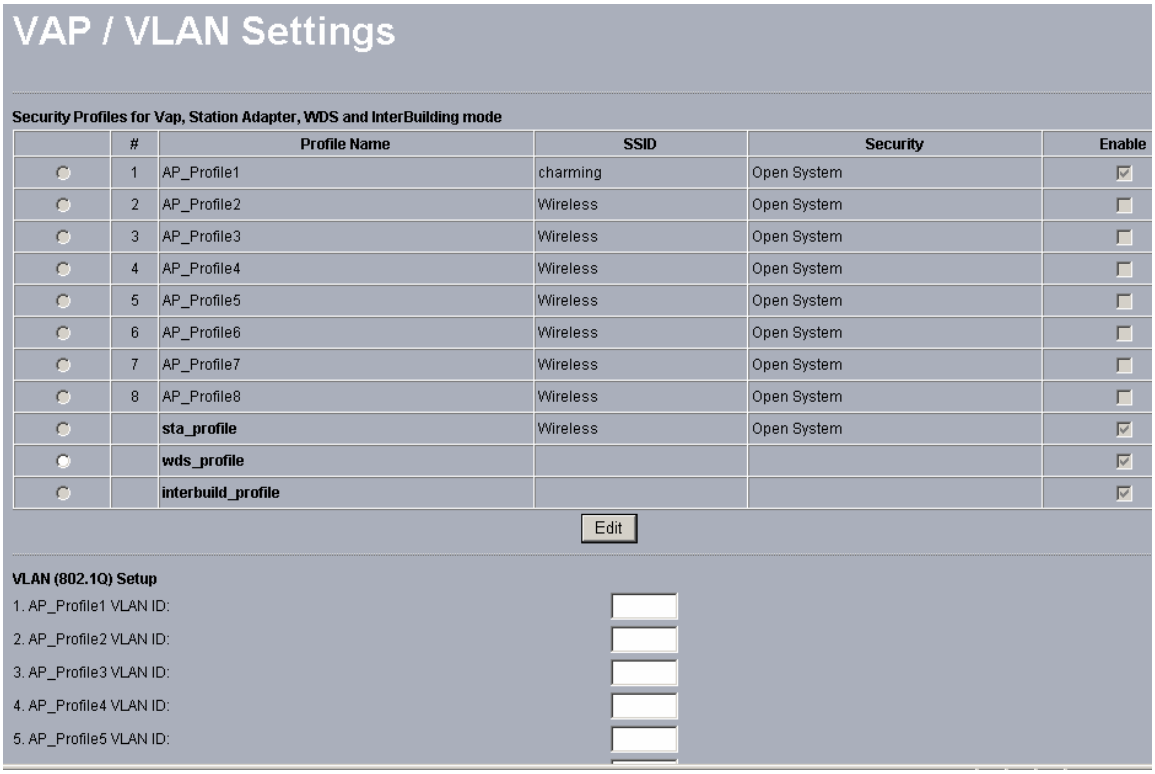
VAP / VLAN Settings
Security Profiles for Vap, Station Adapter, WDS and InterBuilding mode
Profile Name SSID Security Enable
1 AP_Profile1 charming Open System
2 AP_Profile2 Wireless Open System
3 AP_Profile3 Wireless Open System
4 AP_Profile4 Wireless Open System
5 AP_Profile5 Wireless Open System
6 AP_Profile6 Wireless Open System
7 AP_Profile7 Wireless Open System
8 AP_Profile8 Wireless Open System
sta_profile Wireless Open System
wds_profile
interbuild_profile
Edit
VLAN (802.1Q) Setup
1. AP_Profile1 VLAN ID:
2. AP_Profile2 VLAN ID:
3. AP_Profile3 VLAN ID:
4. AP_Profile4 VLAN ID:
5. AP_Profile5 VLAN ID:

Figure 5-2

You can configure each profile by clicking “Edit”. Such configuration as configuring profile name, SSID, enabling “broadcast SSID”, or doing security.

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Understanding WEP/WPA Security Options

The following elaborate WEP/WPA security options.

Field	Description
Network Authentication	You have two authentication options. • Open System: No authentication is imposed to the AG-3621. However, if the 802.1x option is configured, authentication of connections can be performed by a RADIUS server. • Shared: this is for shared key authentication. Data is encrypted.
Encryption Strength	You can select the following data encryption options: Disabled 64- 128- or 152-bit WEP With Open System Authentication and 64-128- or 152-bit WEP Data Encryption with Shared Key authentication
Security Encryption (WEP) Keys	WEP enabled, you can manually enter the four data encryption keys or enable Passphrase to generate the keys automatically. These values must be matched between all Clients and access points at your LAN (key 1 must be the same for all, key 2 must be the same for all, etc.) Two ways to create WEP encryption keys: • Passphrase. Passphrase functions as automatically case-sensitive characters. However not all wireless adapters support passphrase key generation. • Manual. These values are not case sensitive. 64-bit WEP: enter 10 hexadecimal digits (any combination of 0-9, a-f, or A-F). 128-bit WEP: enter 26 hexadecimal digits (any combination of 0-9, a-f, or A-F). 152-bit WEP: enter 32 hexadecimal digits (any combination of 0-9, a-f, or A-F).
WPA-PSK (Wi-Fi Protected Access Pre-Shared Key)	WPA Pre-Shared-Key uses a pre-shared key to perform the authentication and generate the initial data encryption keys. Then, it dynamically varies the encryption key. It uses Temporal Key Integrity Protocol (TKIP) for encryption keys. However not all wireless adapters support WPA. Furthermore, client software is required on the client. Windows XP and Windows 2000 with Service Pack 3 do include the client software that supports WPA. Nevertheless, the wireless adapter hardware and driver must also support WPA.

WPA 2-PSK	Identical to WPA-PSK with the exception of the way to encryption keys. WPA2-PSK uses Advanced Encryption Standard(AES) for encryption keys.
WPA-PSK& WPA 2-PSK	You may have the option of WPA-PSK associated with TKIP. Alternatively, you can select WPA2-PSK associated with AES.

Access Control

Authentication by username and password is only part of the story. Frequently you want to let people in based on something other than who they are. Something such as where they are coming from. Restricting access based on something other than the identity of the user is generally referred to as Access Control.

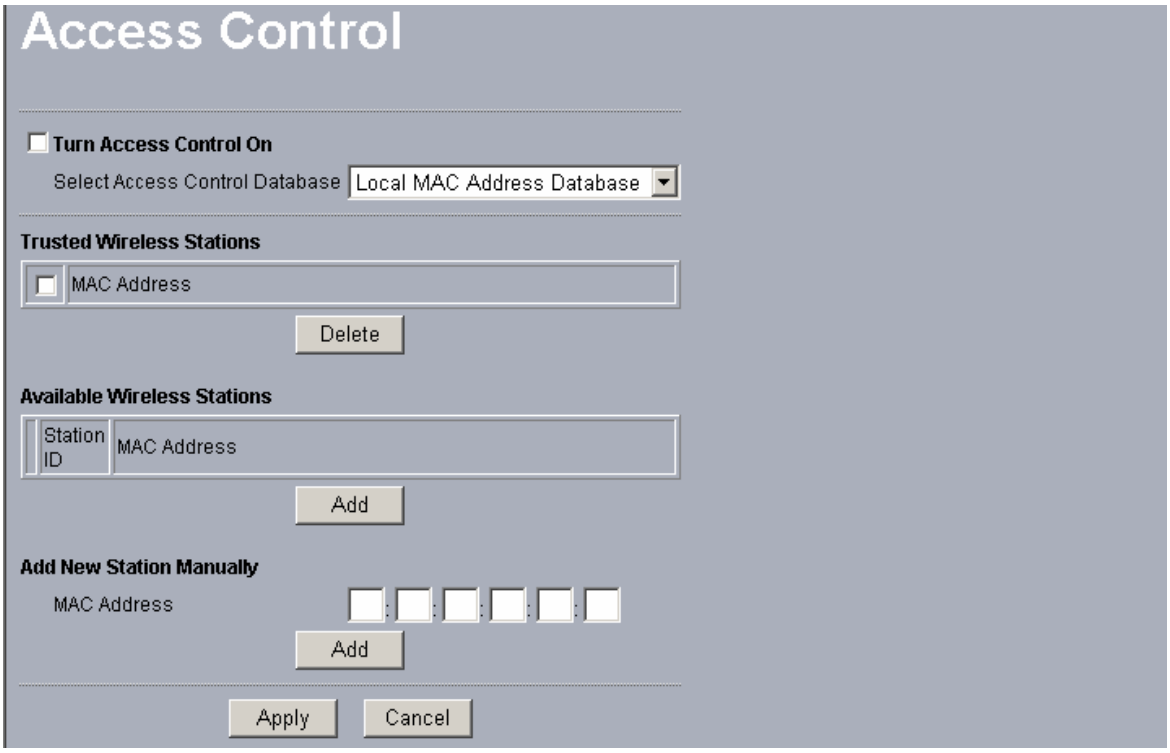

Figure: 5-3

You can restrict access to only trusted STAs so that unknown STAs cannot wirelessly connect to the AG-3621 by turning Access Control on.

By entering MAC Address of new stations, you can manually add the stations to allow them to be connected to the AG-3621

WDS Mode

In a Wireless Distribution System (WDS) mode, multiple access points can be configured to operate in the WDS mode to inter-connect wired LAN segments that are attached to the AG-3621 access point. Up to four devices can be connected to the AG-3621.

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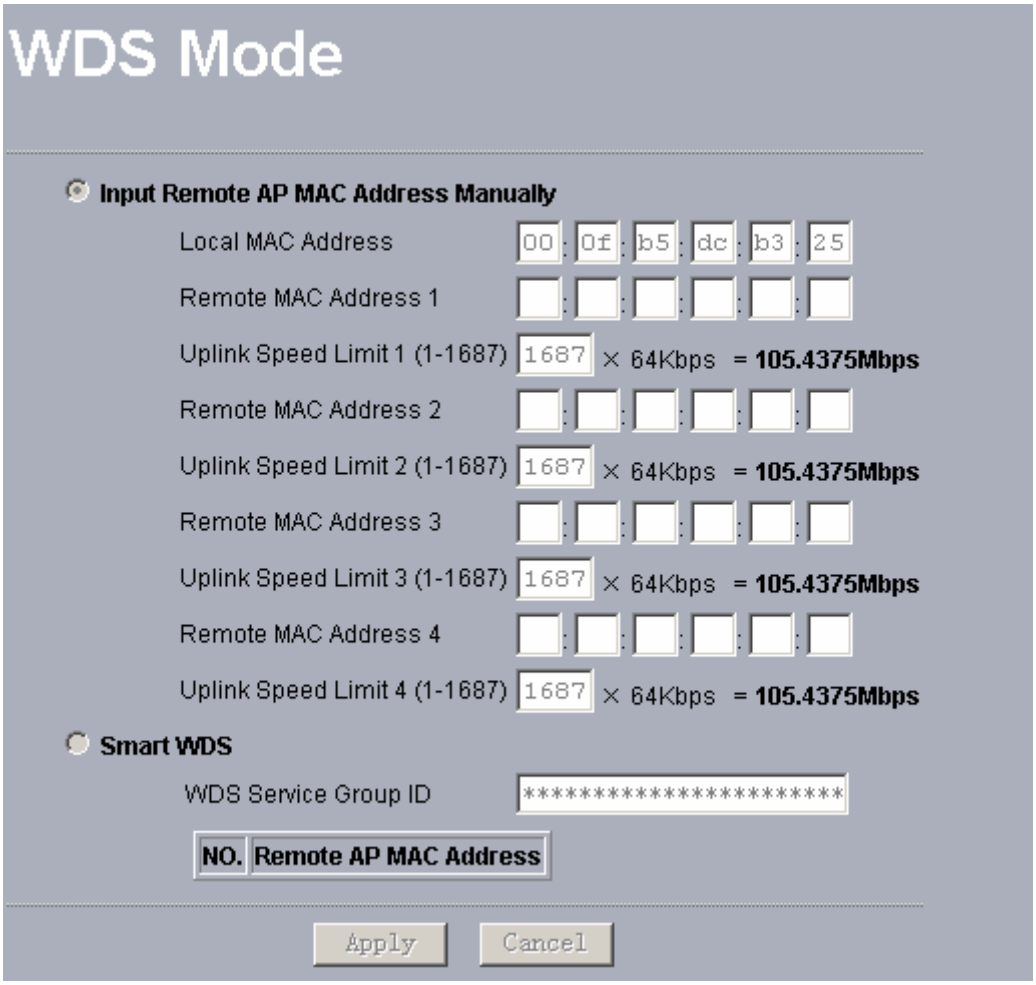
WDS Mode
Input Remote AP MAC Address Manually
Local MAC Address
00 : 0f : b5 : dc : b3 : 25
Remote MAC Address 1
Uplink Speed Limit 1 (1-1687)
1687 × 64Kbps = 105.4375Mbps
Remote MAC Address 2
Uplink Speed Limit 2 (1-1687)
1687 × 64Kbps = 105.4375Mbps
Remote MAC Address 3
Uplink Speed Limit 3 (1-1687)
1687 × 64Kbps = 105.4375Mbps
Remote MAC Address 4
Uplink Speed Limit 4 (1-1687)
1687 × 64Kbps = 105.4375Mbps
Smart WDS
WDS Service Group ID
****
NO.
Remote AP MAC Address
Apply
Cancel

Figure: 5-4

Local MAC Address:

This field provides the AG-4621 MAC address.

Remote MAC Address:

Enter the MAC Address of your desired devices connected to the AG-3621 in WDS Mode.

Uplink Speed Limit:

You can specify the transmission rate between the AG-3621 and other devices by entering the value in uplink speed limit. The most speed available is 1687 ×64Kbps=105.4375Mbps

Smart WDS

Under bridge mode, enabling smart WDS, the AG-3621 access point can sniff other AG3621 around him and automatically connect those that work in the same channel.

WDS Service Group ID

If two APs share the same group ID, they will be automatically connected.

Smart WDS can be activated on the premise that APs must be AG-3621.

Advanced Settings

The default advanced wireless LAN parameters usually streamline your work.

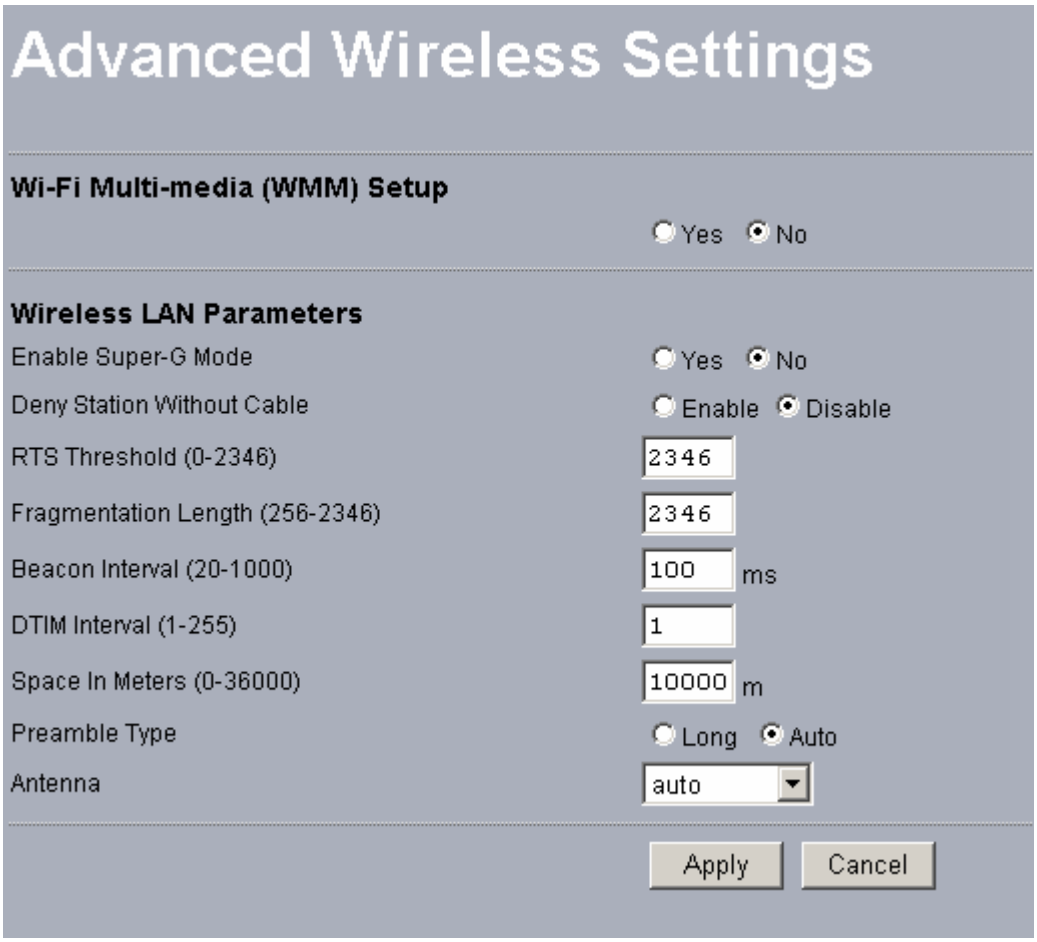

Figure: 5-5

Wi-Fi Multi-media (WMM)

Currently interest and demand for multimedia applications and advanced capabilities are growing quickly. In the residential market, Voice over Internet Protocol (VoIP), video streaming, music streaming, and interactive gaming are among the most anticipated applications. In enterprise and public networks, support for VoIP, real time streaming of audio and video content, as well as traffic management, allows network owners to invent advanced methods to offer a richer and more diverse set of services.

WMM prioritizes traffic demands from different applications and extends

Wi-Fi's high quality end-user experience from data connectivity to voice, music, and video applications under a wide variety of environment and traffic conditions. WMM defines four access categories (voice, video, best effort, and background) that are used to prioritize traffic so that these applications have access to the necessary network resources.

When your STA connect to the AG-3621, you can enjoy high-quality multimedia function at your LAN, by enabling WMM.

Note

- Before enabling WMM, make sure your stations must also support WMM. Further, your operating system must be Windows XP with Service Pack 2.

Super G and wireless parameters

Enabling super G, your transmission rate could reach up to 108Mbps.

The following describes the advanced wireless parameters.

Field	Description
RTS Threshold	The packet size used to determine whether it should use the CSMA/CD (Carrier Sense Multiple Access with Collision Detection) or the CSMA/CA (Carrier Sense Multiple Access with Collision Avoidance) mechanism for packet transmission.
Fragmentation Length	This is the maximum packet size used for fragmentation. Packets larger than the size programmed in this field will be fragmented. The Fragment Threshold value must be larger than the RTS Threshold value.
Beacon Interval	Specifies the data beacon rate between 20 and 1000.
DTIM Interval	The Delivery Traffic Indication Message specifies the data beacon rate between 1 and 255.
Preamble Type	A long transmit preamble may provide a more reliable connection or slightly longer range. A short transmit preamble gives better performance. Long is the default

Antenna	Select the desired antenna for transmitting and receiving. Auto is the default.

Chapter 6. Managing and Testing Your AG-3621

Site Survey

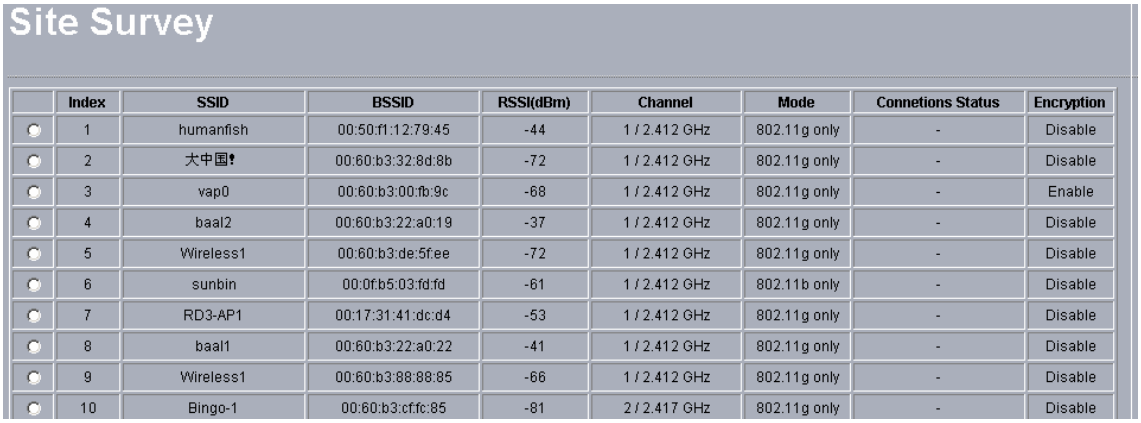
Site Survey
Index SSID BSSID RSSI(dBm) Channel Mode Connetions Status Encryption
1 humanfish 00:50:f1:12:79:45 -44 1 / 2.412 GHz 802.11g only - Disable
2 大中国! 00:60:b3:32:8d:8b -72 1 / 2.412 GHz 802.11g only - Disable
3 vap0 00:60:b3:00:fb:9c -68 1 / 2.412 GHz 802.11g only - Enable
4 baal2 00:60:b3:22:a0:19 -37 1 / 2.412 GHz 802.11g only - Disable
5 Wireless1 00:60:b3:de:5f:ee -72 1 / 2.412 GHz 802.11g only - Disable
6 sunbin 00:0f:b5:03:fd:fd -61 1 / 2.412 GHz 802.11b only - Disable
7 RD3-AP1 00:17:31:41:dc:d4 -53 1 / 2.412 GHz 802.11g only - Disable
8 baal1 00:60:b3:22:a0:22 -41 1 / 2.412 GHz 802.11g only - Disable
9 Wireless1 00:60:b3:88:88:85 -66 1 / 2.412 GHz 802.11g only - Disable
10 Bingo-1 00:60:b3:cf:fc:85 -81 2 / 2.417 GHz 802.11g only - Disable

Figure: 7-1

Site Survey provides you with a table of adjacent APs connected to your AG-3621, when it acts as a station. In terms of each connected AP, Site Survey offers you their personal information, including SSID, BSSID, RSSI, channel mode, connection status and encryption.

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Link Test

To optimize the communication between your LAN, link test is designed to test the parameters that indicates communication quality.

Figure: 7-2

We'll discuss parameters in link test.

RF Cable Loss(0-10):

This indicates RF loss in cables, ranging from 0 to 10.

Local Antenna Gain(0-99):

This indicates extended coverage provided by the local AG-3621, for an existing 802.11a/b/g wireless local area network (WLAN), ranging from o to 99.

Remote Antenna Gain((0-99):

This indicates extended coverage provided by the remote AG-3621, for an existing 802.11a/b/g wireless local area network (WLAN).ranging from o to 99.

Test Interval (1-60000):This provides testing time

Test Packet Size (64-1514):

This tests the size of packet transmitted between the two AG-3621 access points, ranging from 64 to 1514

Test Time (60-86400):

This specifies how long the link test will last ranging from 60 to86400.

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Chapter 7. Management

This chapter describes how to manage your AG-3621 access point.

Change Password

Figure: 8-1

You can have your desired password by changing password.'.

Take the following steps to change password.

•Enter your currently-used password in the current field.

•Enter your new password in the New Password field.

•Re-enter the new password to confirm it in the Repeat New Password field.

Finally, click "Apply" to save the change.

Also, if you desire to restore to the factory-set password, please click "Yes".

The default setting is disabled.

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Remote Management

AG-3621 provides remote management to manage and diagnose your network.

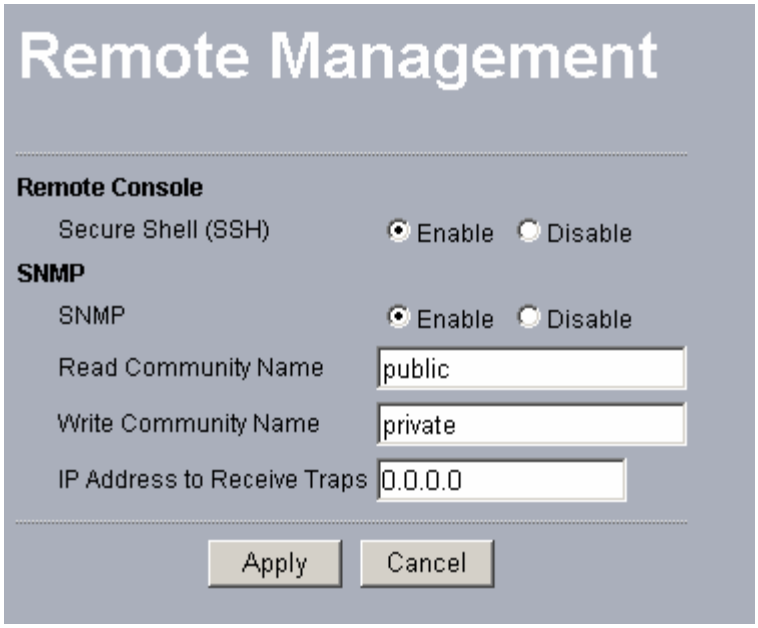

Figure: 8-2

SSH

Secure Shell (SSH) is a program that provides a cryptographically secure replacement for Telnet that is considered the de facto protocol for remote logins. SSH runs in the Application Layer of the TCP/IP stack. SSH provides a secure connection over the Internet providing strong user authentication. SSH protects the privacy of transmitted data (such as passwords, binary data, and administrative commands) by encrypting it.

SSH clients make SSH relatively easy to use and are available on most computers including those that run Windows or a type of UNIX. SSH clients are also available on some handheld devices.

SSH on the access point is enabled by default. When user manager is enabled, SSH uses the same usernames and passwords established by the user manager.

The applicability of SSH for the AG-3621 access point allows you to have insight into your LAN.

✎ Note

If your computer does not have the SSH client installed, you must procure and install it before you can proceed. You can download the latest SSH client from the following site: http://ssh.com/.

Take the following steps to manage the AG-3621 via SSH..

1. From the Putty Configuration, enter IP address in host name field and port number in port field. Also, select SSH as protocol.

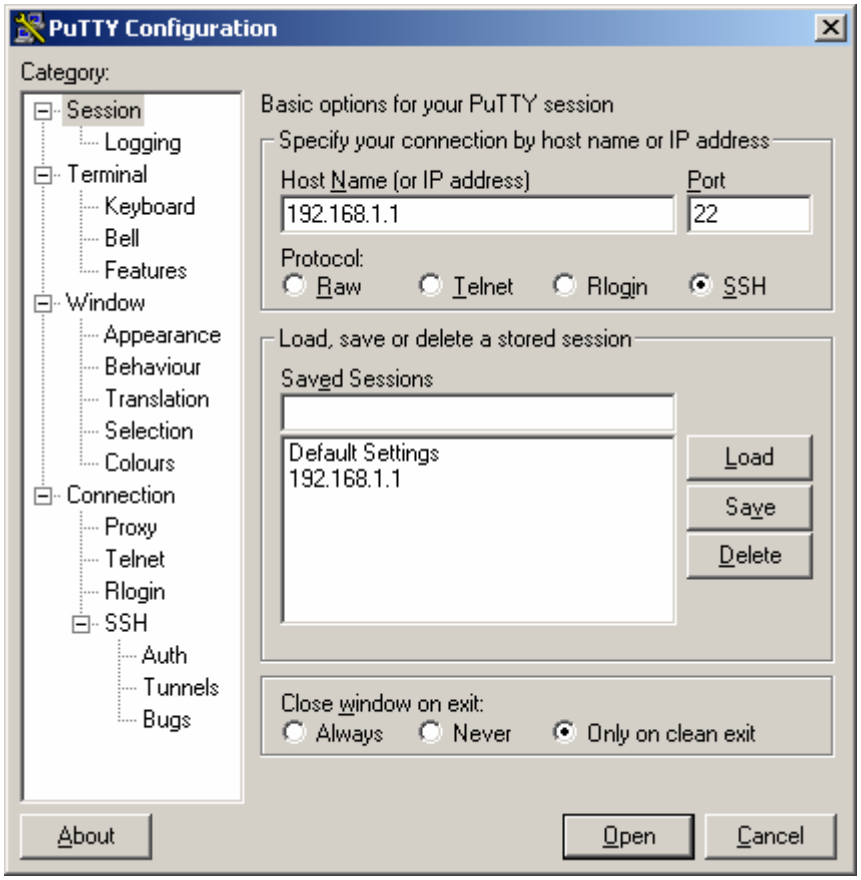

Figure: 8-3

2. Press Open, and the screen below should appear.

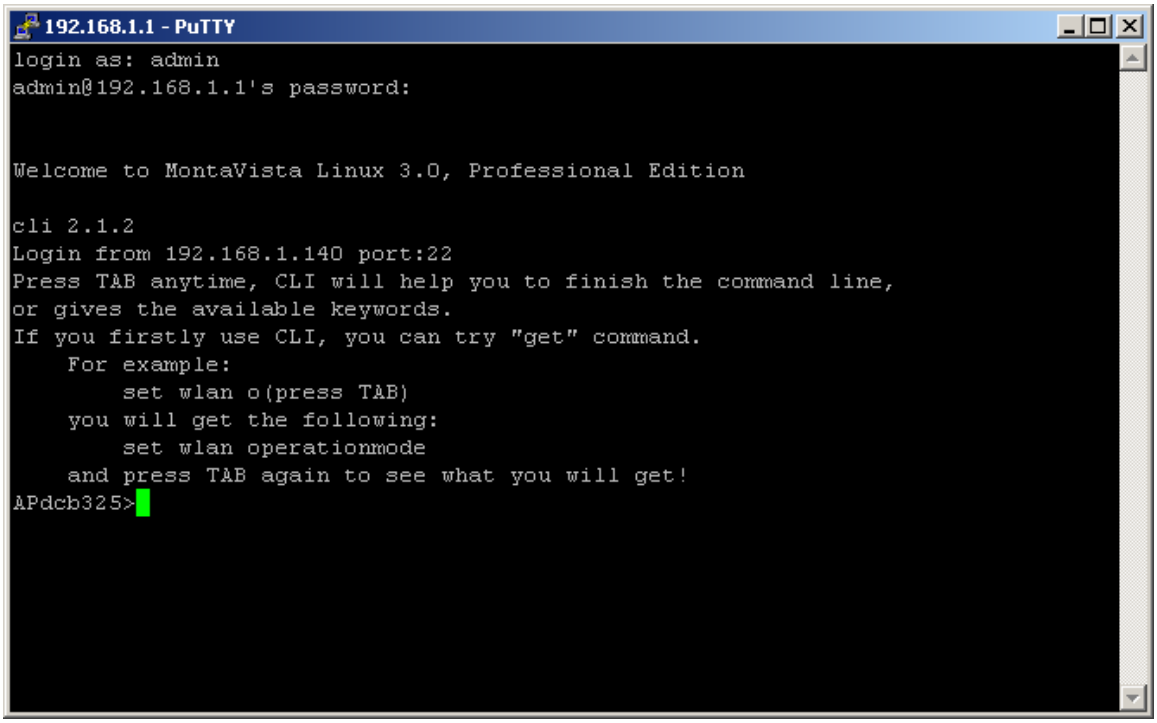
192.168.1.1 - PuTTY
login as: admin
admin@192.168.1.1's password:
Welcome to MontaVista Linux 3.0, Professional Edition
cli 2.1.2
Login from 192.168.1.140 port:22
Press TAB anytime, CLI will help you to finish the command line,
or gives the available keywords.
If you firstly use CLI, you can try "get" command.
For example:
set wlan o(press TAB)
you will get the following:
set wlan operationmode
and press TAB again to see what you will get!
APdcb325>

Figure: 8-4

The login name is admin and password is the default password. After successful login, the screen should show the APdcb325>. In this example, the APdcb325 is the AG-3621 access point name.. Enter help to display the SSH command help.

SNMP

SNMP (simple network management protocol) is a distributed-management protocol. Via SNMP, you have access to administrate your AG-3621 remotely. Read Community Name: You have access to read rather than write.The default name is public.

Write Community Name: The default name is private.

Take the steps below to manage your AG-3621 via SNMP.

1 Enter ftp 192.168.1.1 , then in turn enter admin and password, and finally enter get Jupiter.mib to get Jupiter.MIB. (The AG-3621 software is called Jupiter.)

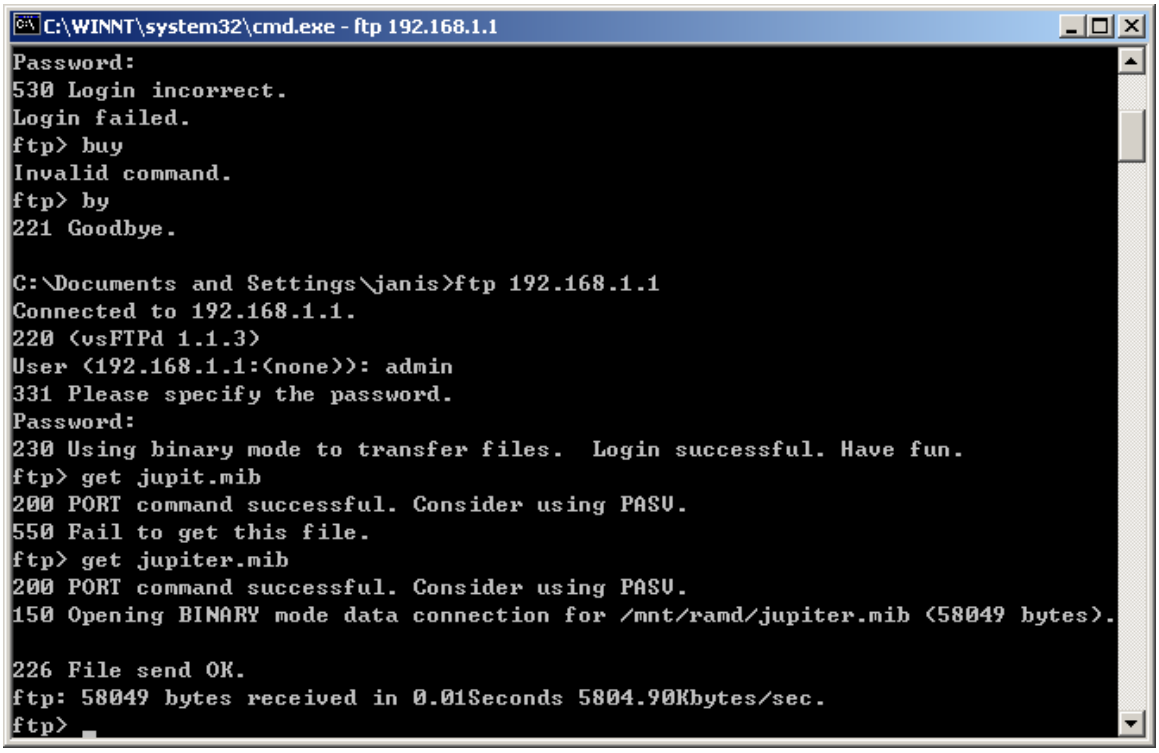
C:\WINNT\system32\cmd.exe - ftp 192.168.1.1
Password:
530 Login incorrect.
Login failed.
ftp> buy
Invalid command.
ftp> by
221 Goodbye.
C:\Documents and Settings\janis>ftp 192.168.1.1
Connected to 192.168.1.1.
220 (vsFTPd 1.1.3)
User (192.168.1.1:(none)): admin
331 Please specify the password.
Password:
230 Using binary mode to transfer files. Login successful. Have fun.
ftp> get jupit.mib
200 PORT command successful. Consider using PASV.
550 Fail to get this file.
ftp> get jupiter.mib
200 PORT command successful. Consider using PASV.
150 Opening BINARY mode data connection for /mnt/ramd/jupiter.mib (58049 bytes).
226 File send OK.
ftp: 58049 bytes received in 0.01Seconds 5804.90Kbytes/sec.
ftp>

Figure: 8-5

2 From MIB Compiler interface, open jupter.mib and compile the file by enabling compile Jupiter mib on tools menu. Save the compiled files to your disk.

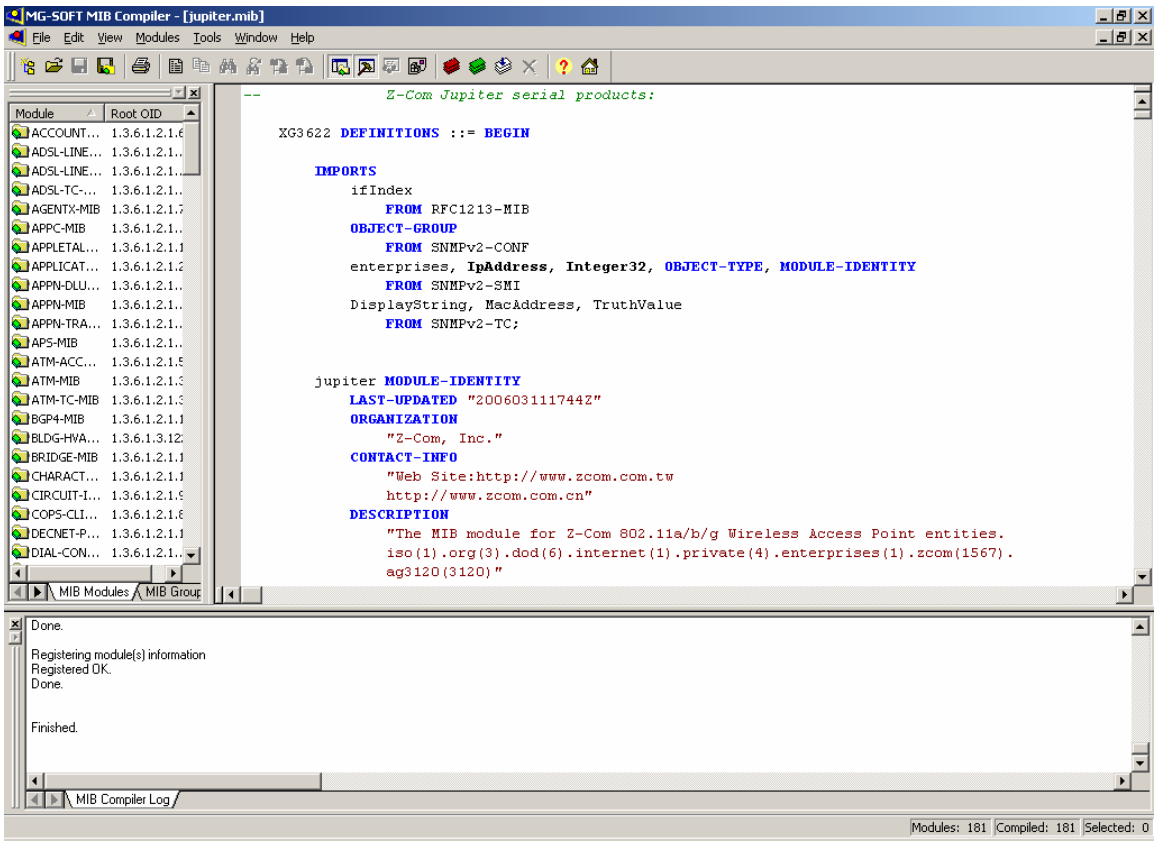

Figure: 8-6

3 Load the file to SNMP station. Your screen will appear.

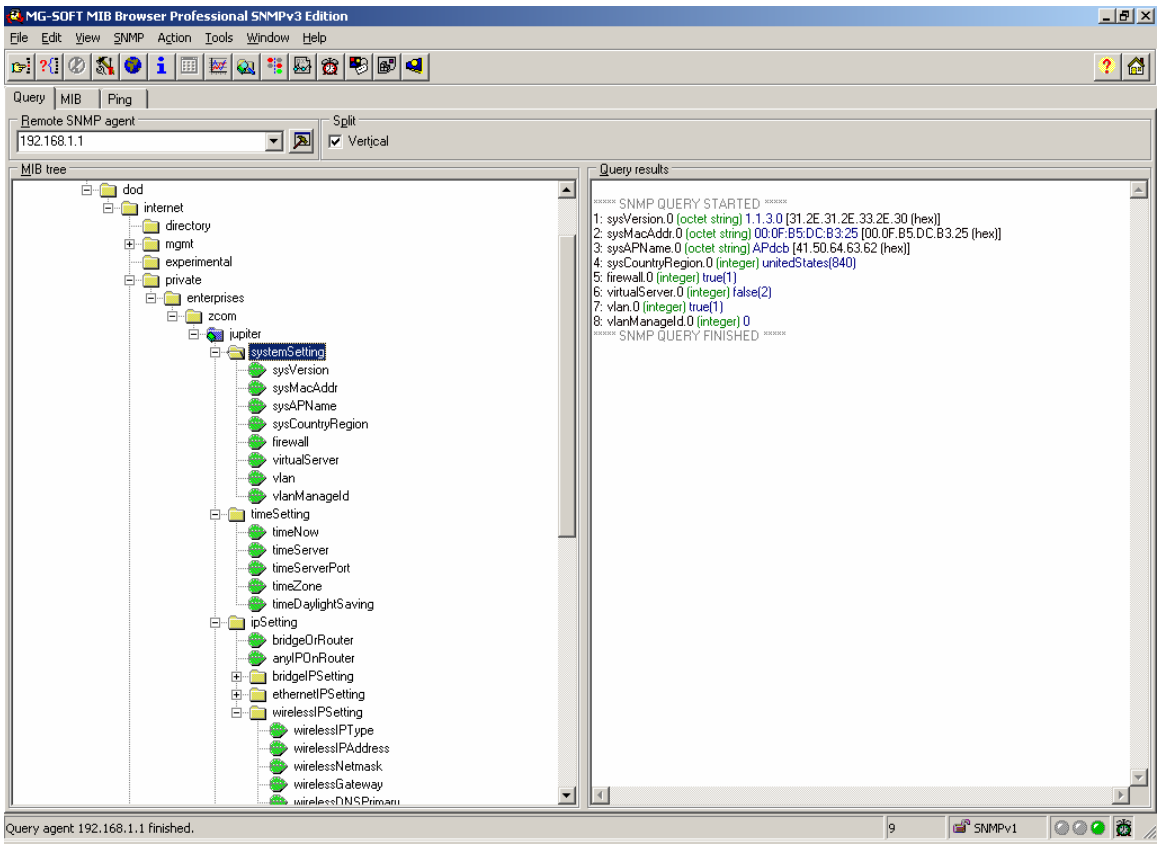

Figure: 8-7

4 Changing settings with the database query page

Follow these steps to change an access point setting from the Database Query page:

Step 1 Click Get. The current value for the setting appears in the Value field.

Step 2 Modify the value in the Value field.

Step 3 Click Set. The new value is set on the access point.

Upgrade Firmware

Note

When uploading software to the AG-3621 Access Point, it is important not to interrupt the Web browser by closing the window, clicking a link, or loading a new page. If the browser is interrupted, the upload may fail, corrupt the software, and render the AG-3621 completely inoperable.

The software of the AG-3621 Access Point is stored in FLASH memory, and can be upgraded as new software is released by Zcomax (UK) Limited. Upgrade files can be downloaded from Zcomax (UK) Limited's Web site. If the upgrade file is compressed (.ZIP file), you must first extract the image (.RMG) file before sending it to the wireless access point. The upgrade file can be sent using your browser.

Note

The Web browser used to upload new firmware into the AG-3621 must support HTTP uploads, such as Microsoft Internet Explorer 6.0 or above, or Netscape Navigator 4.78 or above.

1. Download the new software file from Zcomax (UK) Limited, save it to your hard disk, and unzip it.
2. From the main menu Management section, click the Upgrade Firmware link to display the screen above.
3. In the Upgrade Firmware menu, click the Browse button and browse to the location of the image (.RMG) upgrade file.
4. Click Upload. When the upload completes, your wireless access point will automatically restart. The upgrade process typically takes about one minute. In some cases, you may need to reconfigure the wireless access point after upgrading.

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Backup / Restore Settings

AG-3621 access point provides backup and restore for file management.

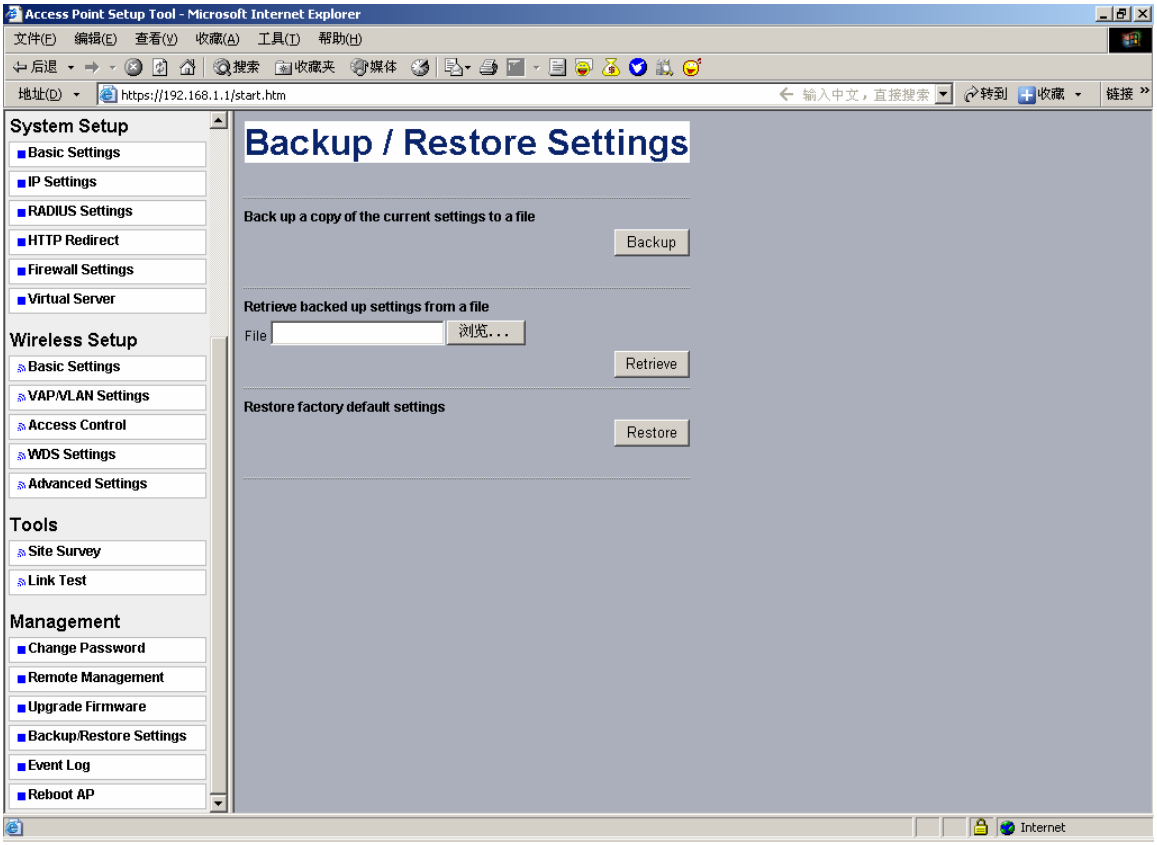

Figure: 8-8

You have access to back up the currently settings by enabling AG-3621 ‘s Backup function.

Retrieve:

Retrieve button allows you to retrieve your backup files.

Restore:

This button can be used to clear ALL data and restore ALL settings to the factory default values.

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Event Log

If you have a SysLog server on your LAN, enable the SysLog option. Event Log offers you activity log information.

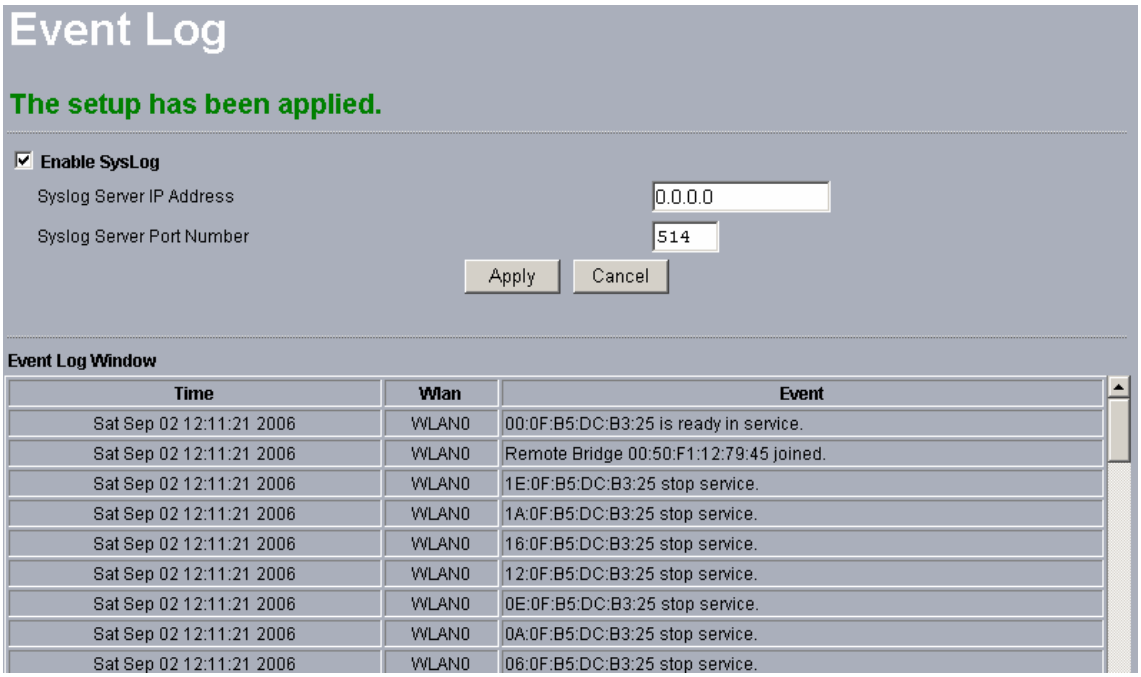
Event Log
The setup has been applied.
Enable SysLog
Syslog Server IP Address
0.0.0.0
Syslog Server Port Number
514
Apply
Cancel
Event Log Window
Time
Wlan
Event
Sat Sep 02 12:11:21 2006 WLAN0 00:0F:B5:DC:B3:25 is ready in service.
Sat Sep 02 12:11:21 2006 WLAN0 Remote Bridge 00:50:F1:12:79:45 joined.
Sat Sep 02 12:11:21 2006 WLAN0 1E:0F:B5:DC:B3:25 stop service.
Sat Sep 02 12:11:21 2006 WLAN0 1A:0F:B5:DC:B3:25 stop service.
Sat Sep 02 12:11:21 2006 WLAN0 16:0F:B5:DC:B3:25 stop service.
Sat Sep 02 12:11:21 2006 WLAN0 12:0F:B5:DC:B3:25 stop service.
Sat Sep 02 12:11:21 2006 WLAN0 0E:0F:B5:DC:B3:25 stop service.
Sat Sep 02 12:11:21 2006 WLAN0 0A:0F:B5:DC:B3:25 stop service.
Sat Sep 02 12:11:21 2006 WLAN0 06:0F:B5:DC:B3:25 stop service.

Figure: 8-9

• SysLog Server IP address:

The access point will send all the SysLog to the specified IP address if SysLog option is enabled. Default: 0.0.0.0

• Port: The port number configured in the SysLog server on your network. Default: 514

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Reboot AP

In some cases, if you want to reboot AG-3621, click Yes and then apply. AG-3621 will reboot.

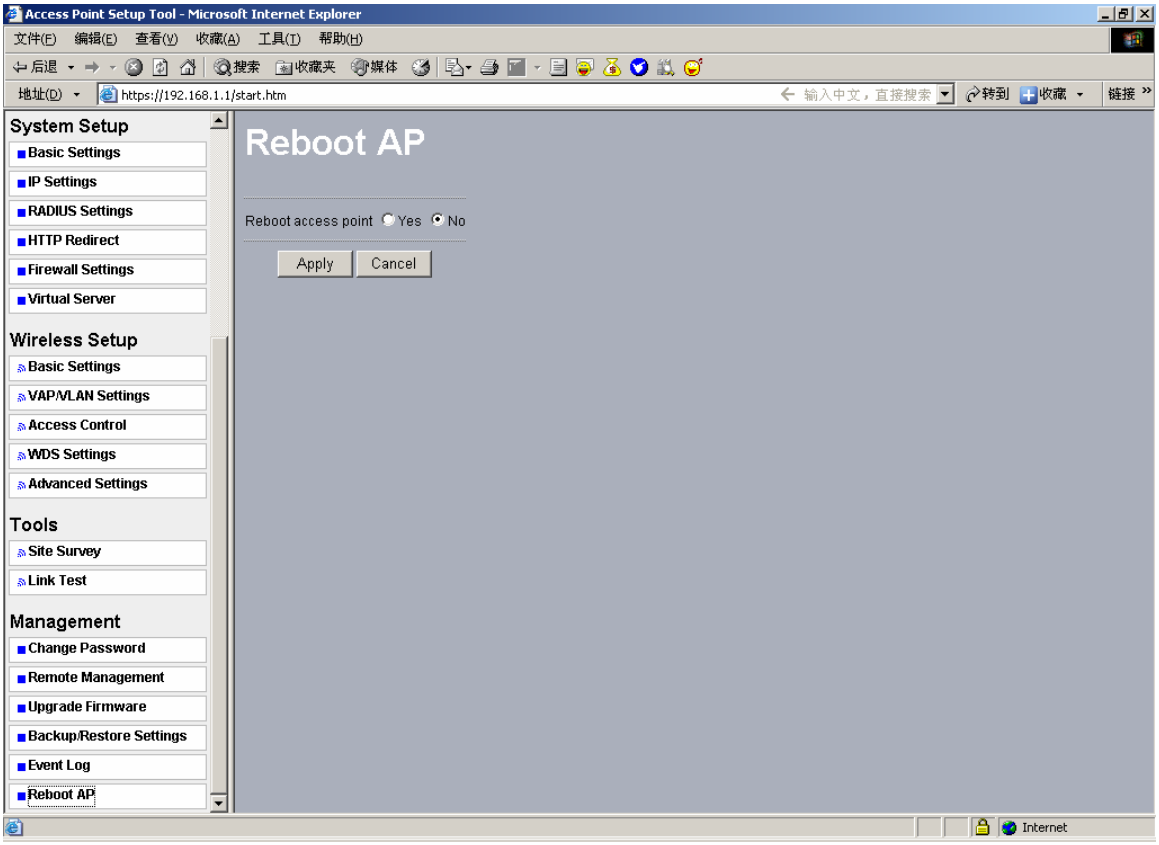

Figure: 8-10

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Chapter 8. Troubleshooting

In this article we will look at how to tackle some common wireless network problems that people come across. This document will outline the steps you should take if you encounter one of the mentioned issues.

1. I do not know if my IP Address from my ISP is Static or Dynamic.

Possible Solution:

If you have cable or DSL service, you most likely have a Dynamic IP address. You should always check with your service provider to verify this information, since some providers will assign Static IP addresses. If you have a Dynamic IP address, select Obtain IP Automatically in the WAN Setup area of the HTML Web User Interface, and the Wireless AG-3621 Access Point will automatically obtain the information it needs from your service provider. If you have a Static IP address, select Specify IP in the WAN Setup area of the HTML Web User Interface. If you are using PPPoE, you must specify PPPoE and select either static or dynamic IP addressing.

2. My Web User Interface is not responding, but I can still access the Internet.

Possible Solution:

If your Web User Interface stops responding, ping your AP IP address to check whether “reply” is obtained, or unplug and then plug back in the power supply of the Wireless AG-3621 Access Point. This will reboot the Wireless AG-3621 Access Point. If you are still unable to communicate with the Web User Interface, press in and hold the RESET button for between five and ten seconds. This will reset the Wireless AG-3621 Access Point to the factory default settings. If you applied any personal configuration settings, you will need to make the changes again.

3. The Wireless LAN activity light does not light up.

Possible Solution:

• If the Wireless LAN activity light stays off, disconnect the adapter from its power source and then plug it in again.

• Make sure the antennas are tightly connected to the AG-3621

• Contact Zcomax (UK) Limited support if the Wireless LAN activity light remains off.

4. The LAN light is not lit.

Possible Solution

There is a hardware connection problem. heck these items:

• Make sure the cable connectors are securely plugged in at the access point and the network device (hub, switch, or router). A switch, hub, or router must be installed between the access point and the Ethernet LAN or broadband modem.

• Make sure the connected device is turned on.

• Be sure the correct cable is used. Use a standard Category 5 Ethernet patch cable. If the network device has Auto Uplink™ (MDI/MDIX) ports, you can use either a crossover cable or a normal patch cable.

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Chapter 9. Warranty Information

LIMITED WARRANTY

Zcomax (UK) Limited warrants to You that, for a period of three years (the “Warranty Period”), your Zcomax (UK) Limited’s Product will be substantially free of defects in materials and workmanship under normal use. Your exclusive remedy and Zcomax (UK) Limited' entire liability under this warranty will be for Zcomax (UK) Limited at its option to repair or replace the Product or refund Your purchase price less any rebates. This limited warranty extends only to the original purchaser.

If the Product proves defective during the Warranty Period call Zcomax (UK) Limited Technical Support in order to obtain a Return

Authorization Number, if applicable. BE SURE TO HAVE YOUR PROOF OF PURCHASE ON HAND WHEN CALLING. If You are requested to return the Product, mark the Return Authorization Number clearly on the outside of the package and include a

copy of your original proof of purchase. RETURN REQUESTS CANNOT BE PROCESSED WITHOUT PROOF OF PURCHASE. You are responsible for shipping defective Products to Zcomax (UK) Limited. Zcomax (UK) Limited pays for UPS Ground shipping from Zcomax (UK) Limited back to You only.

ALL IMPLIED WARRANTIES AND CONDITIONS OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED

TO THE DURATION OF THE WARRANTY PERIOD. ALL OTHER EXPRESS OR IMPLIED CONDITIONS, REPRESENTATIONS ANDWARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF NON-INFRINGEMENT, ARE DISCLAIMED.

Some jurisdictions do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to You. This warranty gives you specific legal rights, and You may also have other rights which vary by jurisdiction.

This warranty does not apply if the Product (a) has been altered, except by Zcomax (UK) Limited, (b) has not been installed, operated, repaired, or maintained in accordance with instructions supplied by Zcomax (UK) Limited, or (c) has been subjected to abnormal physical or electrical stress, misuse, negligence, or accident. In addition, due to the continual development of new techniques for intruding upon and attacking networks, Zcomax (UK) Limited does not warrant that the Product will be free of vulnerability to intrusion or attack.

TO THE EXTENT NOT PROHIBITED BY LAW, IN NO EVENT WILL ZCOMAX (UK) LIMITED BE LIABLE FOR ANY LOST DATA, REVENUE OR

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OF LIABILITY (INCLUDING NEGLIGENCE), ARISING OUT OF OR RELATED TO THE USE OF OR INABILITY TO USE THE PRODUCT
(INCLUDING ANY SOFTWARE), EVEN IF ZCOMAX (UK) LIMITED HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN NO EVENT
WILL ZCOMAX (UK) LIMITED' LIABILITY EXCEED THE AMOUNT PAID BY YOU FOR THE PRODUCT. The foregoing limitations will apply even if any warranty or remedy provided under this Agreement fails of its essential purpose. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to You. Please direct all inquiries to: Zcomax (UK) Limited, P.O. Bo

Chapter 10. Regulatory Information

FCC Statement

This product has been tested and complies with the specifications for a Class B digital device, pursuant to Part 15 of the
FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used according to the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which is found by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

• Reorient or relocate the receiving antenna
• Increase the separation between the equipment or devices
• Connect the equipment to an outlet other than the receiver's
• Consult a dealer or an experienced radio/TV technician for assistance

FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body. This transmitter must not be co-located or operating in conjuction with any other antenna or transmitter.

To maintain compliance with FCC RF exposure compliance requirements, please follow operation instruction as documented in this manual.

Safety Notices

Do not use this product near water, for example, in a wet basement or near a swimming pool. Avoid using this product during an electrical storm. There may be a remote risk of electric shock from lightning.

Operation is subject to the following two conditions:

1. This device may not cause interference and
2. This device must accept any interference, including interference that may cause undesired operation of the device.

Chapter 11. Contact Information

Need to contact Z -Com?

Visit us online for information on the latest products and updates

to your existing products at: http://www.zcom.com.tw

Can't find information about a product you want to buy

on the web? Do you want to know more about networking

with Zcomax (UK) Limited products? Give our advice line a call at: (Zcomax (UK) Limited)

Or fax your request in to:

If you experience problems with any Zcomax (UK) Limited product,

you can call us at:

Don't wish to call? You can e-mail us at: support@zcom.com.tw

If any Zcomax (UK) Limited product proves defective during its warranty period,

you can call the Zcomax (UK) Limited Return Merchandise Authorization

department for obtaining a Return Authorization Number at:

Tel: +886-3-5777364

Fax:+886-3-5773359

Sales Contact

info@zcom.com.tw

FAE Support

support@zcom.com.tw

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